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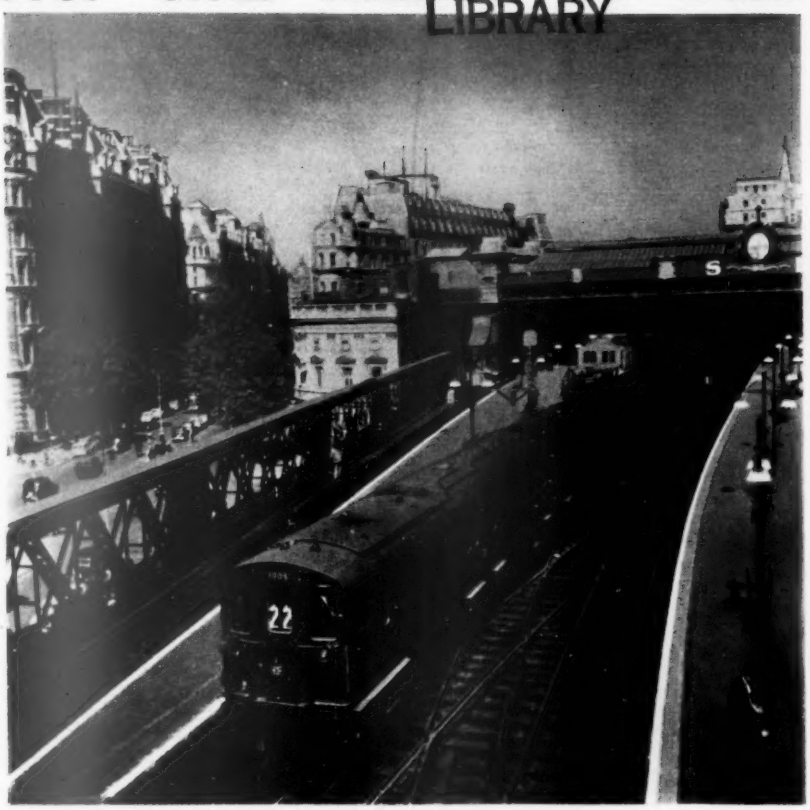

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Wage Claims in the Making

THE Associated Society of Locomotive Engineers & Firemen has now joined in the preliminaries of the current round of negotiations for higher pay on British Railways. The A.S.L.E.F. is to ask for an increase of 10 per cent for its members, an amount agreed at a meeting of the union executive on September 27. Although last to indicate its dissatisfaction with current wage rates, it is the first of the railway trade unions to name a figure, the National Union of Railwaymen having spoken so far only of a "substantial" increase. It is believed, however, to be thinking in terms of at least £1 a week for its members, and has asked the British Transport Commission and the London Transport Executive to meet it for discussions. The Transport Salaried Staffs' Association, which asked the Commission in August to hold a review of salaries, has been informed that this would be possible only if the other railway trade unions joined in. It has now to decide on its course of action, and although it has not yet submitted a formal claim, its intentions seem clear. Agreement between the unions is unlikely, for the A.S.L.E.F. and the T.S.S.A. clashed with the N.U.R. at the Trades Union Congress last month over proposals to reduce the number of trade unions—proposals which would almost certainly have entailed the absorption of the two smaller unions into the N.U.R. The A.S.L.E.F. and T.S.S.A. are hardly less likely to agree with each other. The T.S.S.A. undertook, as a condition of the last wage increase, to give sympathetic consideration to Commission proposals for regular reviews of wages, salaries, and related matters, but the A.S.L.E.F. rejected this condition outright. Unless economic pressure overcomes differences of opinion in the trade unions, it is likely that the Commission will face three separate claims in the near future. To these will almost certainly be added a claim on behalf of railway shopmen submitted by the Confederation of Shipbuilding & Engineering Unions in conjunction with the N.U.R. These claims should be resisted by the Commission. There may have been a case, a few years ago, for claiming that railway wages had lagged behind the cost of living and wages in general. This is no longer true. Any wage award now would not be compensation for the higher cost of living, but the start of a new turn to the spiral of inflation.

Selling Railway Transport

IT is perhaps appropriate that the Purchasing Officers' Association, at its national conference at Folkestone last week, should have heard a paper on "Selling Railways' Service" by Mr. J. R. Pike, Chief Commercial Officer, Railways Division, British Transport Commission. Suggesting that the two principal criteria on which the selling of transport is based are the service given and the price of that service, he claims, rightly, that the modernisation plan and other steps now being taken by British Railways are designed to give really competitive service and prices. The decentralisation of Regions into traffic areas, in particular, is an important means to that end. The transport user will be assured of a quick and sympathetic hearing from "a man on the spot with knowledge of local conditions." Also, and perhaps of no smaller significance to the smooth functioning of the railways, the staff will be responsible to a man who, by reason of the comparatively small area in his charge, will be able to make himself known to a large number of them. In railway service, where staff are scattered and often working unorthodox hours of duty, local management is a step towards better service.

Equipment for Service

IN discussing diesel and electric traction, Mr. Pike reminded his audience that trunk haulage occupies only a small proportion of the time taken by a wagon from start to finish of its journey. More than 40 per cent of the costs of movement are accounted for by terminal services, including haulage, shunting, and marshalling. The plans for marshalling yards, which envisage the closing of some 200 yards and concentration of marshalling work at 50 or so strategically sited points, take on added significance when these figures are borne in mind. British Railways plans envisage the circumnavigation of London by using a route from Bletchley to Redhill via Oxford and Reading and the development of a new marshalling yard at Swanbourne, near Bletchley. These facilities will handle 40 per cent of the traffic now passing from north to south, slowly and at considerable cost, via the London junctions. Another great city, Birmingham, will be by-passed by a short length of new railway and a new yard in Gloucestershire. Other new yards, mostly designed to do the work of several existing installations, are under construction at key points such as Carlisle, Margam, Severn Tunnel Junction, Temple Mills, and Ripple Lane. An account of recent progress in Scotland appears elsewhere in this issue.

Developments in Eastern Indian

THE improvements in operating performance of the Eastern Railway of India and its electrification in the Calcutta area were mentioned last week at the 54th

East Indian Railway Officers' Association Dinner in London. The speaker was the chairman, Mr. H. J. Allinson, a former Chief Electrical Engineer of the E.I.R., the eastern portion of which forms the major part of the present Eastern Railway. A short account of this function is given on another page. The industrial development of India depends greatly on the efficiency of the Eastern Railway, which serves the concentrations of industry in and around Calcutta, and the Bengal-Bihar coalfield and heavy industries. The decision to work both passenger and freight traffic electrically between Calcutta, Howrah and Burdwan electrified at 3,000 V. was made in 1954, and work is well in hand, despite delays to deliveries from the West caused by the closing of the Suez Canal. It is only recently that 25 kV. has been decided on for electrification west of Burdwan. The British connection with Indian railways, referred to at the E.I.R. dinner, persists in the ability of British industry to supply them. It is based on special knowledge of local requirements. Much of the equipment for the Calcutta electrification is being supplied from this country.

Progress on the N.W.R. of Pakistan

THE General Manager of the North Western Railway of Pakistan, Mr. M. J. Chughtai, has sent us a copy of the informative booklet, the current "N.W.R. Year Book of Information." Although the old N.W.R., before the partition of India in 1947, was the largest system with a route-mileage little short of 7,000, its Pakistani counterpart today still has 5,336 miles. Moreover, though it serves an area of some 310,000 sq. miles with a population of only about 36,000,000, its traffic is heavy. In fact, it carries on an average every day 262,000 passengers a distance of over 50 miles, and 30,000 tons of goods as many as 295 miles. In the period 1948-49 to 1956-57 annual freight tonnage has risen from 6,356,000 to 10,857,000 or by 70 per cent in eight years. The railway is organised on the divisional system with five geographical and one Mechanical Workshops Division, each of the former under a Divisional Superintendent. He has powers almost equivalent to a local general manager, but is responsible to the General Manager in Lahore for the operation and maintenance of his division.

Pakistan Railways' Use of Oil Fuel

A REMINDER of the progress made with the introduction of diesel traction and in the use of oil fuel in steam locomotives is the fact that of the 823 locomotives on the N.W.R. (738 of 5-ft. 6-in. gauge), no fewer than 102 on the broad gauge are diesels; 510 of the total steam locomotive stock of 721—or 70 per cent—are now oil fired. Altogether, therefore, only 211 locomotives or 26 per cent are not dependent upon oil. A further 37 diesels are to be acquired by 1960 and already orders for 18 have been placed. Similar developments are taking place on the Eastern Bengal Railway in Eastern Pakistan. A well-equipped diesel workshop has been built at Karachi. Mail and passenger trains between Karachi and Peshawar via Lahore are now hauled between Karachi and Lala Musa, 866 miles, without change of diesel locomotives; the daily average mileage of diesels working in these links is 624. The annual consumption of diesel oil for the locomotives is now 30,793 tons, and of fuel oil for steam locomotives is 450,252 tons. The Moghalpura (Lahore) workshops is one of the largest in Asia, employing about 15,000. As well as turning out oil-fuel equipment for N.W.R. locomotives these shops have also manufactured 79 sets for the E.B.R.

Wagons for Rhodesia

THE award to the Metropolitan-Cammell Carriage & Wagon Co. Ltd. of two important orders for wagons for Rhodesia Railways within a few weeks of each other shows the confidence placed by that administration in British railway equipment and also the competitive ability of British manufacturers. The latest order, details of which are given in our Contracts and Tenders columns, is for 500 bogie high-sided wagons, and is the eighth such order to be received by the company since the war. Orders for 4,000 wagons of this type have been placed with Metropolitan-Cammell in the last 10 years. The present order was obtained in the face of particularly keen competition and with the earlier order for 200 bogie covered goods wagons, reported in our issue of September 27, is valued at some £1,500,000. Traffic in the Rhodesias is growing rapidly, and Rhodesia Railways are expanding their resources as quickly as possible to keep pace with demand. British-built equipment is playing an important part in providing the more intensive services, the work of the Beyer-Garratt steam locomotives and the 2,000-h.p. 1-Co-Co-1 English Electric diesel-electric locomotives being especially notable.

Closing Lines on the Irish Border

THE Government of Northern Ireland has unfortunately decided that the apparent losses on working certain Great Northern Railway branches near, and crossing, the Border did not justify keeping these sections open. Accordingly, from last Tuesday, passenger and freight services were suspended on those lines, as recorded elsewhere in this issue. No great effort seems to have been made to determine what could be done by the Government to enable facilities of great value to the communities concerned to be perpetuated. The authorities in the Republic could have co-operated. The G.N.R. Board is now left with some "stub" lines in the Republic, operated by freight trains only. No doubt the course chosen is the easier one to justify in the eyes of the majority of the Northern Irish taxpayers. The importance of the lines concerned as feeders does not appear to have been adequately weighed. Hardship to the travelling public to some extent is being mitigated by the substitution of bus services. The G.N.R., however, has always displayed vigour, even in adversity. Two encouraging features of the winter passenger timetable are accelerations, by 5 min., of Belfast-Dublin non-stop "Enterprise" expresses, and substitution of diesel for steam on the Belfast-Londonderry line, with drastic cuts in journey times.

New Substation for London Underground

REPLACEMENT of rotary converters by static apparatus, involving a frequency change from 33⅓ cycles to 50 cycles is the main characteristic of the new substation at Charing Cross. The installation replaces one supplying the District, Northern, and Bakerloo lines of London Transport. It is at present operating up to about two-thirds of its capacity and the changeover from the old plant is being carried out in stages to avoid interruption to the service. Power is taken from Greenwich Power House at 50 cycles via Aldgate Switch House. The substation is designed for an ultimate capacity of 12,000 kW., comprising eight rectifier sets each of 1,500 kW. rating; only six sets being installed in the first instance. A nominal 9,000 kW. is considered adequate for prevailing needs. In general, the new equipment is similar to that installed at Bond Street in 1954, and described in our issue of May 7 of that year. In both substations manufacture and installation of equipment have been carried out by the Hackbridge & Hewittic Electric Co. Ltd., to the requirement of Mr. T. S. Pick, Chief Electrical Engineer of London Transport.

Mile-Long Bridge Built in Two Years

THE passage of a train carrying 1,000 passengers across the new rail and road bridge at Wuhan on September 25 marked the formal opening of one of the world's major bridges, one mile long, which took only two years to build. This completes the important link for rail traffic between north and south China. Besides

simplifying local communications between Hankow on the north side of the Yangtse River and Wuchang on the south, the railway crossing the wide gap between Chengchow, the radial point for the railways of North China, and Chuchow, giving access to the southern system, is now a through 4-ft. 8½-in. gauge line, and the ferry crossing is no longer necessary. Plans for the bridge had been drawn up by 1953 as part of a scheme of development for the whole of Wuhan, a scheme which also includes three new railway stations and a rail and road bridge across the Han River. The Yangtse bridge itself took two years to build. There are eight piers, the steelwork of which was inserted into the river bed through reinforced concrete tubes previously placed, the depth of the river making normal caisson work impracticable. The tubes, each some 5 ft. in dia., were then filled with concrete. The bridge has two railway tracks on one deck and a six-lane roadway on the other.

North Sea Canal Tunnel Opened

THE opening by Queen Juliana last weekend of the tunnel at Velsen, built to carry rail and road traffic under the North Sea Canal, completes a project which was started in 1941. The Haarlem-Alkmaar line of the Netherlands Railways previously crossed the canal on a swing bridge which had to be opened frequently for shipping, and would have had to be rebuilt in connection with the proposed widening of the canal. Work on the tunnel was stopped in 1942 on German orders, and was not resumed until 1952. During the first stage of the scheme, the two southern halves of the railway and road tunnels were built on dry land. In the second stage the canal was widened and shipping diverted to the channel along the new south bank. Finally the northern half of the canal was closed by cofferdams so that the northern sections of the two tunnels could be constructed in an open trench. The total length of the new railway is about two miles, of which two-thirds are in tunnel. The total cost was some £13,000,000.

Diesel Training for Senior Staff

SOME indication of the magnitude of the training requirement for diesel staff facing British Railways is given by the fact that some 1,450 multiple-unit diesel trains will be in service by the end of this year. In a further 12 months' time they will number 2,700. These figures take no account of diesel main-line or shunting locomotives. The diesel training programme of British Railways is in two major parts, consisting of instruction in schools formed on a Regional basis for drivers and fitters, and a centralised syllabus of training for all personnel up to officer level of the Mechanical & Electrical, Carriage & Wagon, and Motive Power departments of all Regions. Recently a special Diesel Wing has been built at the British Railways Staff Training College at Derby, where the centralised scheme has been in operation for some time. This wing has provided increased accommodation for the considerable equipment which is required for training senior staff in diesel locomotive operation and emphasises the importance which British Railways attach to the need for highly-trained personnel.

The Accident at Nozieres

THE serious derailment at Nozières on September 7 on the French National Railways, caused by failure to observe the speed restriction at a turnout, was practically a repetition of that which had occurred at Bollène on July 19 with a like fatality list of some 30 persons. The fact that the train was to be deviated at Nozières was announced in the printed instructions given to the driver, who bore an excellent character and had a good record. He duly acknowledged, as was proved by the paper band of the speed recorder, receipt of the cab signal warning at the first signal about 1,180 yd. on the approach side of the turnout, which warning was supplemented by a second at a point about 980 yd. further on, calling for a reduction of speed to some 20 m.p.h. In spite of these, however, the driver continued on at a constant speed of about 57 m.p.h. and disregarded the indications given at the junction itself, being unable to give the least explanation for his lapse, according to statements in the French press. The locomotive overturned and collided with the parapet of a bridge, causing the coaches to bunch disastrously. It is known that a system of automatic brake application has been designed by the S.N.C.F. authorities, to meet such cases, but to install it everywhere would be very costly.

Winter Train Services, Eastern and North Eastern Regions

THE developments in the train services to operate from September 16 over the principal main line of the Eastern and North Eastern Regions, from Kings Cross to York, Newcastle and Edinburgh, are as revolutionary as those introduced over the Midland Division of the London Midland Region last June; they are a further welcome sign that operating officers are not waiting for the introduction of the new future forms of motive power before planning thoroughgoing improvements in their schedules. The principal Eastern and North Eastern changes are the spreading out of the long-distance trains in such a way as to give a much greater range of departure time than hitherto; the provision of very tightly timed semi-fast trains between Kings Cross and Doncaster to serve the principal intermediate stops, in order to permit acceleration of the long-distance services by cutting out some of their intermediate halts; curtailment in the duration of station stops, due in part to more lengthy engine workings and less engine-changing; and a stricter limitation of the loading of the faster trains, also with a view to acceleration.

One striking result of this policy is that in every 24 hr., 10 expresses, five in each direction, cover the 268·4 miles between Kings Cross and Newcastle without intermediate stop, and five the 232·3 miles between Kings Cross and Darlington non-stop. Eight of these runs are made by night expresses, which have been accelerated out of all recognition, and in most cases are given starts considerably later than hitherto. The "Aberdonian" has no publicly booked stop between London and Inverkeithing, though stops for locomotive changing are required at Newcastle and Edinburgh in each direction. By these lengthy runs passengers have the great advantage of being undisturbed over considerable periods, and operating is simplified at such junctions as York by elimination of platform occupation. For the first time in British history there is an all-sleeper train of first class cars only—the "Night Scotsman"—second class sleeping cars being provided in other trains. Newcastle also now has an all-sleeper train, for the "Tynesider" is composed of first and second class sleeping cars only, as also is the "Aberdonian."

In its amplitude, the service between Kings Cross and Newcastle far surpasses anything provided previously. Day expresses run at roughly hourly intervals from 8 a.m. to 4 p.m. out of Kings Cross, mostly on the hour but with one or two exceptions, and later at 4.50 and 5.35 p.m., while the facilities in the up direction, though at more irregular times, are just as ample. Last winter the number of trains daily between Kings Cross and Newcastle at from 50 to 60 m.p.h. average speed was 13: this winter it is 21, and with average journey time reduced from 5 hr. 3 min. to 4 hr. 56½ min. The changes in the service between Kings Cross and Leeds and Bradford have produced no additional trains, but most of the existing expresses have been accelerated considerably by the omission of intermediate stops.

North of York the scheduled speeds rise to a level never previously attained. The first 40 min. booking on record over the 44·1 miles from Darlington to York—by the 5.5 p.m. from Newcastle to Kings Cross—appears in the timetable, at a start-to-stop speed of 66·2 m.p.h. Three down runs are scheduled over the same course in 41 min.,

eight up in 42 min., nine down in 43 min., and three up in 44 min., making a total of 24 runs booked daily between these points at start-to-stop speeds of 60·1 to 66·2 m.p.h. There is some smartening of the workings between Newcastle and Edinburgh also, the "Fair Maid" and the "Talisman" in particular being booked over the 124·5 miles in 123 min.

The new semi-fast services between Kings Cross and Doncaster set some high standards of speed for trains of this type; allowances of 3 hr. 7 to 16 min. for the 156 miles, including from four to six intermediate stops, though doubtless with moderate loads, will call for energetic locomotive work. It remains to be seen whether such start-to-stop timings as 24 min. for the 27 miles from Hitchin to Huntingdon (67·5 m.p.h.), 19 min. for the 18·6 miles over Markham summit from Retford to Newark, and 15 min. for the 14·6 miles from Grantham to Newark, will prove capable of punctual observance, though as these are succeeded by recovery margins over later stages of the runs concerned, some drivers no doubt will be content to rely on the latter to help them maintain their overall times. The complete details of the train service changes between Kings Cross, York, Newcastle, and Edinburgh, and to and from Leeds and Bradford, are described elsewhere in this issue.

As to other developments, the North Eastern Region aim of complete abandonment of the steam operation of its local services, and replacement by multiple-unit diesel sets, is carried a considerable stage further. The important service between Darlington, Middlesbrough and Saltburn is completely dieselised, with trains at even 30 min. intervals from 5.15 a.m. to 11.15 p.m. out of Darlington, and from 5.55 a.m. to 10.55 p.m. (with a 4.55 a.m. also) out of Saltburn. The times of 60 min. eastbound and, in most cases, 61 min. westbound compare with 66 to 71 min. by most of the previous steam trains. The transformation of the semi-fast service between Middlesbrough and Newcastle by the coast route also is complete; from Middlesbrough there are 77-min. trains every hr. from 8.36 a.m. to 8.36 p.m., and from Newcastle 78-min. trains hourly from 8.15 a.m. to 8.15 p.m., except 4.15 p.m., which is a Liverpool express with a connection from Stockton to Middlesbrough. The previous steam trains were allowed 93 min.

Diesel trains have also taken over the service between Selby and Goole, and the majority of the workings between Hull, Brough and Goole; Hull, Beverley, Bridlington and Scarborough; Hull and York; Darlington and Richmond; Darlington, Barnard Castle and Middleton-in-Teesdale; Darlington, Bishop Auckland and Crook; and Bishop Auckland and Durham. On some of the lines mentioned there are faster times, but accelerated schedules in general will be brought in later in the year.

In the Great Eastern section the service between Norwich Thorpe, Cromer, Sheringham and Melton Constable is being changed to diesel multiple-unit operation, the running time of 48 min. between Norwich and Cromer Beach being 12 or 13 min. less than previous steam times, and between Norwich and Sheringham 18 min. faster. The only trains continuing to run through from Liverpool Street to Sheringham are the 9.30 a.m. "Norfolkman," 12.30 p.m. and 3.30 p.m. "Broadsman," and the 6.20 a.m. "Broadsman," 7.38 a.m. and 4.24 p.m. "Norfolkman" from Sheringham to London; all other connections are made by changing at Norwich into or out of diesel trains. Diesel trains also take over the regular Yarmouth-Lowestoft direct service via Gorleston, at hourly intervals—29 min. past the hr. from Yarmouth South Town and 58 min. past the hr. from Lowestoft, with a journey time of 24 min.

An important acceleration affecting the Great Eastern and Great Central lines is that of the "North Country Continental." Leaving Parkeston Quay at 8 a.m., this is booked non-stop from Ipswich to March, omitting the Bury St. Edmunds and Ely stops, and from March to Lincoln non-stop, missing Spalding; Sheffield is reached at 12.52, Manchester Central at 2.4, and Liverpool Central at 3 p.m., 26 min. earlier. In the reverse direction departure from Liverpool is at 1.15 instead of 12.50 p.m., but southbound there are also stops at Sleaford and Spalding. The Newcastle-Colchester afternoon train also is very substantially accelerated, running non-stop from Lincoln to March and from Ely to Ipswich, which is reached at 7.37 p.m., 59 min. earlier, and ahead of the "North Country Continental." This arrangement restores the direct connection from Newcastle and York to Parkeston Quay which has been severed since 1939.

British Transport Commission Traffic Receipts

PASSENGER receipts of British Railways for the four weeks (Period 9) to September 8 were £12,489,000, only slightly more than for the corresponding period of 1956 and £3,324,000 less than for Period 8, the drop being seasonal. The failure to exceed last year's figure by a considerably larger margin is disappointing, in view of the introduction during the past 12 months of diesel trains and other improvements to services. A detailed analysis of receipts would probably show the new diesel services to be a small proportion of the total passenger receipts potential. Nevertheless, with increasing working costs, it is disquieting to see no greater rise in railway passenger takings. Relatively poor weather during a peak holiday period probably affected excursion traffic.

London Transport railway and road receipts remained much the same as last year. Any increase due to the "Suez halfpenny" presumably was offset by a fall in pleasure travel caused by the weather. Passenger takings from ships were well up on Period 9 of 1956; an increase in traffic by the new ships on the Heysham-Belfast service seems to have contributed, though that could be only a small proportion.

—	Four weeks to September 8,		Incr. or decr.	Aggregate for 36 weeks		Incr. or decr.
	1957	1956		1957	1956	
	£000	£000	£000	£000	£000	£000
Passengers—						
British Railways ..	12,489	11,860	+ 629	101,616	90,762	+ 10,854
London Transport:						
Railways	1,687	1,667	+ 20	15,922	14,996	+ 926
Road services ..	4,478	4,273	+ 205	41,310	38,095	+ 3,215
Provincial & Scottish buses	5,224	5,306	− 82	40,614	39,809	+ 805
Ships	1,249	1,113	+ 136	5,512	5,089	+ 423
Total passengers ..	25,127	24,219	+ 908	204,974	188,751	+ 16,223
Freight, Parcels & Mails—						
British Railways:						
Merchandise & livestock	7,689	7,756	− 67	74,326	70,602	+ 3,724
Minerals	4,021	3,789	+ 232	36,415	35,204	+ 1,211
Coal & coke ..	9,543	9,059	+ 484	86,037	85,586	+ 451
Parcels, etc., by passenger train ..	4,055	3,719	+ 336	34,552	32,192	+ 2,360
Collection & delivery, etc. ..	996	952	+ 44	9,347	8,765	+ 582
Total Freight British Railways	26,304	25,275	+ 1,029	240,677	232,349	+ 8,328
Others*	4,381	4,258	+ 123	37,934	38,282	− 348
Total Freight, Parcels, & Mails	30,685	29,533	+ 1,152	278,611	270,631	+ 7,980
Total	55,812	53,752	+ 2,060	483,585	459,382	+ 24,203

* Inland waterways freight, road haulage, and ships

The fact that there was a reduction, albeit a very small one, in British Railways merchandise and livestock receipts compared with last year, is most disappointing, in view of the rise in rates last month and of the steps to capture traffic made possible under the new charges scheme. Greater increases over the 1956 figures might have been expected in mineral and coal class traffic.

For the 36 weeks from the beginning of January British Railways aggregate freight receipts exceeded the corresponding aggregate for last year (£232,349,000) by only £8,328,000. During the same period inland waterways freight, road haulage, and ships freight show a reduction

of £348,000, of which it would be interesting to know the breakdown.

PERCENTAGE VARIATION 1957 COMPARED WITH 1956

	Four weeks to September 8	Thirty-six weeks to September 8
British Railways—		
Passengers	+ 5·3	+11·9
Parcels	+ 9·0	+ 7·3
Merchandise & livestock	— 0·8	+ 5·2
Minerals	+ 6·1	+ 3·4
Coal & coke	+ 3·3	+ 0·3
C. & D. services	+ 4·0	+ 6·6
Total	+ 4·4	+ 5·9
Ships (passengers)	+12·2	+ 8·3
British Road Services, Inland Waterways, and Ships (cargo)	+ 2·8	— 0·9
Road Passenger Transport, Provincial & Scottish	— 1·5	+ 2·0
London Transport—		
Railways	+ 1·2	+ 6·1
Roads	+ 4·7	+ 8·4
Total	+ 3·7	+ 7·8
Aggregate	+ 3·8	+ 5·2

Scottish Marshalling Yards

THE vigorous steps being taken to modernise marshalling yard facilities in the Scottish Region, and the new yard at Thornton, are described in a paper given to the Railway Students' Association Convention in Aberdeen last Tuesday by Mr. F. C. Margetts, Chief Operating Superintendent, Scottish Region, British Railways. On nationalisation in 1948, there were some 80 marshalling yards, concentration points, and groups of assembly sidings in Scotland at which shunting pilots and yard staff were employed.

The policy adopted to improve operating efficiency includes the complete or partial closure of as many yards as possible. During the period 1948-1956, 12 marshalling yards and exchange points were closed; many long-distance fully- and partially-braked freight trains were introduced, and the speed of freight trains was increased. The Region has embarked on a plan which will result in the construction of five major marshalling yard projects at Thornton (Fife), Millerhill (Edinburgh), Perth, Cadder (Glasgow North) and Mossend (Glasgow South), and the complete closure of 46 yards and partial closure of 13 yards.

The recently-completed marshalling yard at Thornton is in operation, and new technical devices associated with the control and speed of wagons will be tried out there. The yards at Millerhill and Perth are under construction and the schemes for Cadder and Mossend are being developed. East and Central Scotland have been dealt with first, leaving the more congested and difficult Glasgow area to be dealt with as a second stage.

It has long been felt by responsible operating officers that one of the drawbacks of hump yard operation was the considerable incidence of "pushing down." In parts of the country, Mr. Margetts explains, there is evidence that the field for recruitment of "chasers"—shunters who follow wagons into sidings to control their running by means of the handbrake—is becoming limited. These factors and others led the Scottish Region to consider the practicability of laying out and equipping its first large new hump yard, Thornton, in a manner which would permit the incorporation of new ideas. The layout of Thornton Yard, its equipment, and any additional requirements introduced, and the results obtained, may play a prominent part in determining progress elsewhere.

Thornton yard is constructed to deal with up and down traffic in one set of sorting sidings. It extends over a distance of 1¼ miles from east to west, has six reception sidings, a hump engine line, and 35 sorting sidings. Up and down freight lines, independent of the adjacent passenger lines, encircle the yard. Train engines are released through a release line on the approach side of the hump, or by a connection at the west end of the yard. Twelve of the sorting sidings are for westbound traffic, the remainder normally being used for eastbound traffic. Reception road capacity varies from 55 to 69 wagons with a total standage of 375 wagons. The sorting sidings vary in capacity from 55 to 78 wagons with a total standage of 2,511 wagons. Brakevan sidings, an electrically-operated 70-ft. turntable, wagon repair facilities, and a transhipment bank complete the layout. Automatic point setting is in operation, and up to 48 cuts can be stored in the system.

The yard is equipped with primary and secondary retarders instead of following the hitherto normal British practice of installing one set of retarders. Automatic retarder control is embodied, the speed and weight of each "cut" of wagons being measured between the hump and the primary retarders, and again between the primary and secondary retarders. The recorded information is related to pre-set retarder leaving speeds. There are two primary and six secondary retarders, operated by compressed air. They consist of articulated 12-ft. sections, the primary retarders being 72-ft. long and the secondary retarders 36-ft. long. Operation is either automatic or manual. Each retarder is equipped with a weight detector, located a short distance in advance, which differentiates between light, medium, and heavy wagons. Wagon speeds are measured by means of a v.h.f. signal radiated in a narrow beam from aerials in the centre of the track and below each retarder. Measurements of weight and speed are automatically fed into selection circuits so arranged that a heavy wagon entering a retarder at too high a speed will be retarded with high pressure until its speed is only slightly above the pre-selected release speed. The pressure is then reduced and when the correct release speed is reached the retarder is opened. Similarly, a wagon of medium weight is retarded with medium pressure and a light wagon is subjected to low pressure.

All humping movements, departure of train engines, arrival and departure of engines and trains for the West, are controlled from the control tower subject to the overriding direction of the Hump Yard Inspector, who is located in a building at the crown of the hump. Cut cards prepared for each load at the reception sidings are sent by the Hump Inspector to the tower by pneumatic tube. The tower is situated between the primary and secondary retarders. All operating movements are effected from a control panel mounted on a cabinet 8 ft. by 2 ft. 3 in. The complete siding layout is depicted and signal and point buttons are superimposed in their geographical positions. The relative positions of the retarders are indicated and with each retarder two switches are provided, one for selecting the leaving speed of wagons and the other either to set the retarder to the automatic position or, when working manually, to apply light or heavy pressure or none at all. The panel also operates certain signals.

The route-setting system results in all points between the hump and the clearance points of the sorting sidings operating automatically. Progress of wagons through the retarders and into the sorting sidings can be followed by panel indications. Two-way loudspeaker communication is provided between key points. As an experiment, closed circuit television has been installed so that the yardmaster can view the west end of the sorting sidings and hump.

Part of Thornton yard was first brought into use in November, 1956. Many teething troubles were encountered and problems of considerable technical and operating interest have arisen. The ideal number of primary and secondary retarders, the degree of pressure which should be applied through them, their respective lengths, are all matters regarding which a great deal remains to be learned. The use of secondary retarders raises problems of gradients below them on straight and curved track.

As Mr. Margetts emphasises, Thornton can and should provide a testing ground. A speedy, reliable, safe, and damage-free method of handling all types of wagons automatically must be found if operating results are to keep pace with commercial demands.

Decline in Freight Movement by Railway

(By a correspondent)

AT first glance, *Transport Statistics* No. 8 might seem to indicate a satisfactory increase of 253,000 tons, or 1·5 per cent, in the tonnage of freight train traffic originated in the four weeks to August 11. The total of 16,548,000 is, however, 383,000 tons, or 2·2 per cent, below 1955 and 1,579,000 or 8·7 per cent below 1951. The loss of merchandise traffic continued to the extent of 14,000 tons, or 0·5 per cent, from 1956. The tonnage of merchandise and livestock was 5·4 per cent down from 1955 and no less than 25 per cent below the 1951 level. A further decrease is probable in the next four weeks to September 8, and heavier forwardings in minerals and coal are likely because of great activity in the production of pig-iron and steel.

Net ton-mile figures show a diminishing freight movement on British Railways. In four weeks to August 11 they worked 1,270 million ton-miles, 2·4 million less than last year. Compared with 1955 the decrease was 70 million, or 5·2 per cent, while in 1951 the railways worked 211 million more ton-miles, making a difference of 14 per cent.

Passenger Travel

A marked improvement in passenger bookings came as a relief from the poor freight record. In June 87,609,000 passenger journeys were made, 10,072,000, or 13 per cent, more than in 1956. First class journeys numbered 1,729,000, an increase of 140,000 or 8·8 per cent. For the first half of 1957, journeys numbered 530,576,000, a rise of 49,483,000 or 10·3 per cent; first class journeys totalled 12,071,000, an advance of 1,936,000, or 19·1 per cent. Passenger takings for six months to June were £65,772,000 against £57,894,000, an advance of 13·6 per cent. First class takings rose by 21 per cent from £6,455,000 to £7,827,000. The cost of providing for the additional volume of travel is an unknown quantity, but would probably be substantial. It has, however, served to restore the status of our railways as passenger carriers to the 1951 level.

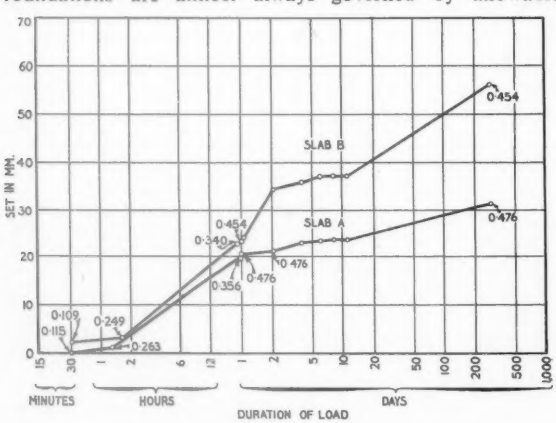
LETTERS TO THE EDITOR

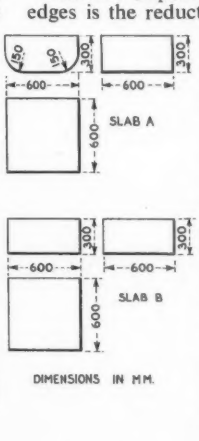
(The Editor is not responsible for opinions of correspondents)

Track Loading Fundamentals

September 14

SIR,—I read with great interest the letters from Messrs. R. W. Sparrow, C. W. Clarke, and A. H. Toms published in the issues of May 17, June 14, and July 12, respectively. I quite agree with Mr. Sparrow and Mr. Toms and would agree also with Mr. Clarke if he limits the application of the mean pressure to cases where ballast and the sub-ballast layer are thick enough. Indeed shear strength is the ruling factor in the risk of rupture; nevertheless, foundations are almost always governed by allowable settlement, rupture beginning generally at a higher stress than that corresponding to the maximum permissible set. Then the permissible load will depend rather on the mean vertical pressure. If ballast and sub-ballast together are thick enough below the sleeper bottom, Mr. Clarke's practical rules would differ very little from the theoretical solution based on Boussinesq's value for vertical displacement of the tie.





Besides, as I showed in a paper to the Brazilian National Institute of Technology in 1947, the rounding of the edges of the base has a remarkable effect on the soil setting and a still greater influence on the ultimate load. Sharp edges originate a stress concentration. Theoretically, there would be infinite stress along the edges of the loaded area, if the foundation rested on a perfectly elastic soil. This will hold both for rigid or elastic slabs, as well as for foundation blocks. In practice, there will be a zone of plastic deformation along the sharp edges. Therefore, there is always rupture of the soil in ordinary foundations, no matter what may be the mean pressure in the loaded area.

The rounding of the edges eliminates the stress concentration due to the sudden variation in the pressure on the soil at both sides of the sharp edges, as that pressure is made continuous throughout the loaded area and the nearby soil. This is true also in the case of the lateral resistance that must be offered by the soil, in the case of the bases of posts and similar structures.

Another important consequence of the rounding of the edges is the reduction in settlement, as this is proportional to the mean vertical stress along a vertical. It is well known that, in most of the foundations on elastic soils, the ruling factor is the allowable set and not the shear resistance of the soil.

No experiment had been made, until recently, in Brazil and abroad, to my knowledge, for determining the effect of such rounding on the ultimate load on the foundation, but two square concrete slabs, 2 ft. square, were tested for depression during eight months of 1944. One slab had four sharp edges as ordinary foundations; the other one had two parallel sharp edges and the remaining opposed edges rounded to a 6-in. radius. The two foundations were laid, side by side, on a fill over a swamp near the Paulista locomotive shops at Jundiaí. Both slabs were loaded with fishplates till a mean pressure of about 0·5 kg. per sq. cm. had been exerted. Depressions were read with an engineering level at different intervals during the eight months the test lasted. As shown by the curves in the accompanying graph, the rounding of the two opposed edges reduces the set to 55 per cent of its value in the case of sharp edges. The trend of the curves seems to indicate that final depression of the slab with two rounded edges will be half that of the other slab.

The rounding of the edges of the base of a rail chair will have a similar effect reducing the cutting of the sleepers. The lateral resistance of a spike of square cross section will be correspondingly increased by the rounding of its edges.

Yours faithfully,

JOSE A. MARSILLAC

Departamento de Estudos e Pesquisas,
Cia. Paulista de Estradas de Ferro, Jundiaí, Brazil

THE SCRAP HEAP

You Can't Have Your Cake . . .

The following telegrams were despatched on the same day within 20 min. of each other from two stations on the Western Uganda Railway:—

From Stationmaster Myanzi to D.T.S. Kampala: "Station area heavily flooded and water threatening. Arrange drainage earliest."

From Stationmaster Kasese to D.E. Kampala: "Kasese water supply failed. Instruct drivers to take enough water from Dura River."

. . . and drink it.—*From "East African Railways & Harbours Magazine."*

Railway Surveyed by Retired General

General Francis Rawdon Chesney, who explored the route to India via Syria and what is now Iraq, was a surveyor and engineer. After his retirement from the army he returned to his native County Down and in an age of railway building tried to have a line built from Rostrevor to Kilkeel to connect with the Newry, Warrenpoint & Rostrevor Railway.

In 1866, though an old man, he undertook the survey of the proposed line by way of Greencastle, some 12 miles. To save engineers' fees Chesney himself surveyed the railway, helped by some friends who were civil engineers. He had his own ideas on railway building. Instead of wooden sleepers he proposed to use blocks of local granite, with tiebars connecting the rails. All platforms were to be of granite, and station buildings weather-boarded. The alignment was fairly level, as it skirted the shores of Carlingford Lough. The project never materialised.

Steam on the Underground

Three hundred steam train lovers of the more ardent sort must have had the time of their lives today (September 22) on the London Underground railway system. By special arrangement with London Transport they relived for what must have been two glorious, crowded, smoky hours the excitement of riding on the Underground behind a steam engine. The passengers were members of the Stephenson Locomotive Society. The engine came from the marshalling yards at Neasden: the coaches were borrowed from the Baker Street to Aylesbury line: the route was from Hammersmith to Wembley Park by way of Edgware Road.—*From "The Manchester Guardian."*

Majestic G.W.R.

"The Great Western was a unique railway. It was a majestic railway. The sort of thing the Fowey branch train did at St. Blazey Junction, and the incredible time one could spend on the Salisbury branch, did not matter in the slightest when one reflected on the magnificent locomotive work on the main line, the superb trains to Bristol and the West of England; likewise on the grandiose stations of Paddington and Bristol Temple Meads—and even at quieter spots like Cheddar and Frome, where you still see stately all-over roofs like the one Inigo Jones put on St. Paul's, Covent Garden. Those stations were the work of the great I. K. Brunel, who was perhaps the greatest civil engineer of the 19th century. . . . So many things seem to have happened first on the Great Western. It was the first railway in the world to run ordinary trains at a mile a minute. It was the first British railway to use the side-corridor train as we know it—that was in 1891. It was the world's first main-line railway to install A.T.C. over all its trunk lines and many of its branches, which was one reason why one was so astounded to hear of any accident on it. It was quite possibly the first European railway to reach a speed of more than 100 m.p.h., and that was in 1904. It was the first great railway to realise the importance of the motor bus, beginning with a Milnes-Daimler between Helston and The Lizard.—*C. Hamilton Ellis in a B.B.C. broadcast.*

Rapid Transit

On Saturday night a friend's train from Scotland, the "Heart of Midlothian," due at Kings Cross at 9.5, ran in at 8.55 p.m. With the help of a smart taxi-driver, he caught a connection from Charing Cross at 9.8 p.m.

Those who have caught trains at Charing Cross off trains due three minutes earlier at Kings Cross must form a fairly small company.—*"Peterborough" in "The Daily Telegraph."*

Unusual Railway Map

Map of British railways, printed on linen and believed to have been produced between 1855 *and* 1860, *now preserved by the Archivist of the British Transport Commission*

Rural Rides

The little branch train fusses by,
Two or three coaches strong,
Hoisting smoke signals to the sky,
As she galumphs along,
Drawn by a vintage 4-4-0,
The branch line's pride and joy,
Which must be fifty-odd or so—
I've known her, man and boy.

Known her and loved her, bless her heart,
As my first link with town;
What if she sometimes "backs" to start,
She's never let me down!
When she gets held up, for some cause,
Pursuing errant time,
She cuts each stop down to a pause,
With her delay's a crime.
Yet, even when she's running late,
Displaying no distress,
She sweeps in past the crossing gate
Like some main-line express.

I love old friends along the line,
The smell of engine oil,
The sturdy lengthmen, who combine
Good nature with their toil,
The porter at the station gate,
The signal set at clear;
Such things are getting out of date,
They say—but, oh, how dear!

A. B.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

MOZAMBIQUE

New Line to Lake Nyasa

Construction is reported to be making good progress of the new railway between Nacala, the new port 60 miles north of the town of Mozambique, and Mtengula on the eastern (Mozambique) shore of Lake Nyasa. The line is expected to be opened next year.

EAST AFRICA

Ferry Erected in Kisumu Workshops

Another routine job recently undertaken in the E.A.R. & H. marine workshops at Kisumu has been the erecting from prefabricated units prepared in the United Kingdom of a new ferry for the Tanganyika Public Works Department. The ferry is for service on the Smith Sound at Mwanza.

RHODESIA

Railhead for Kariba Power Station

Lion's Den was officially opened as a station on March 1, 1957. Formerly a siding, the yard has been extended to six lines and two shunting spurs, with an exchange siding leading to extensive private sidings leased by the Federal Power Board in connection with the Kariba hydro-electric power station on the Zambezi. Facilities also include a large goods shed, a Road Motor Service depot, and staff quarters.

Situated on the Sinoia branch, Lion's Den is 17 miles north of Sinoia, and 102 miles from Salisbury. It is 140 miles by road from Kariba.

The main reason for opening it as a station was to facilitate transport of material to Kariba, but the road motor services are also being developed in the area.

Material for Kariba averages 100 tons a day, but the tonnage is continually increasing, and will do so until the peak is reached in 1959, when something like 1,000 tons a day is anticipated.

This is the second time in its history that Lion's Den has been elevated in status from siding to station. The first time was in 1937 and 1938, during construction of the Chirundu road bridge.

The station derives its name from a den of lions that existed in a kopje a quarter-of-a-mile away from the railway.

INDIA

Mokameh Ganges Bridge

Latest reports on the progress of this work show that all the steel ordered from abroad has been shipped and some 10,750 tons have already been received at site. Girder fabrication and X-ray examination of welded mild steel members are satisfactorily continuing. The R.C. pile and trestle approach viaducts are nearing completion up to girder level; the flyover bridge over the main line is well in hand. About 63,000,000 cu. ft. of earthwork have been completed this season, bringing the total quantity so far moved up to 140,000,000 cu. ft. Good progress is also being made with the transhipment yard, platforms, and sheds, and 40 per cent of the staff quarters for the marshalling and transhipment yards are complete. Roughly 75 per cent of the permanent way materials have now been received.

Railway Terms in Regional Languages

Terms and expressions normally used on signboards, and so on, at stations are to be standardised in regional languages other than Hindi; standardisation in Hindi has already been completed. The object is to facilitate use of identical expressions on the different railways which serve the same language area.

The Railway Board has decided that the work of preparation of standard vocabularies in Tamil, Telugu, Kannada, and Malayalam should be undertaken by the Southern Railway. The languages allotted to the other railways are Marathi for the Central Railway; Gujerati for the Western Railway; Punjabi and Urdu to the Northern Railway; Oriya to the South Eastern Railway; Bengali to the Eastern Railway; and Assamese to the North Eastern Railway.

QUEENSLAND

Opening of Burdekin River Bridge

The new high-level combined rail and road bridge over the Burdekin River on the Queensland Government Railways was opened officially on June 14 by the State Premier, Mr. Gair. The overall length of the bridge is about ½ mile and consists of ten 250-ft., three 60-ft. and eight 45-ft. spans carrying a single line of railway—initially of 3-ft. 6-in. gauge, but designed for 4-ft. 8½-in. gauge eventually—and a 22-ft. roadway side by side. A description of the bridge appeared in *The Railway Gazette* of November 9, 1956.

NEW SOUTH WALES

Improvements at Emu Plains

Emu Plains, at the foot of the Blue Mountains, is the first station beyond the suburban area on the N.S.W.G.R. western main line, electrification of which was recently completed to Lithgow. The first of the electric substations in the country area is situated there, and the first of the automatically signalled sections of line beyond the suburban area starts from that station.

A new signalbox combined with station-master's office is in course of erection at the western end of the down platform, adjoining the level crossing, the gates of which are at present hand operated. Eventually they will be interlocked and worked from the new box. Both platforms have been lengthened to 600 ft.—the standard length on the Blue Mountains line.

On occasions, suburban trains which

Oil-Fired Locomotive in New Zealand

A 4-8-4 "K" class oil-fired locomotive at Frankton, New Zealand. This class of locomotive, originally coal-burning, was introduced in 1932

would normally terminate at Penrith are worked out to Emu Plains and stabled on the main line until required for the return journey to Sydney.

SPAIN

Extension of Electrification

Electric traction was inaugurated recently between Reus and Mora la Nueva. This is an extension of the Reus-Barcelona electrified line, and is some 30 miles long, with gradients of 1 in 60 and many long tunnels such as the 2½-mile Argentera tunnel.

With the electrification of the line from Mora la Nueva to Barcelona, 97½ miles, important economies will be obtained on the steeply graded sections in the cost of coal for steam locomotives. The line, as is the whole route to Barcelona, is electrified at 3,300 V., supplied from a substation erected at Mora la Nueva, the output of which can be doubled should this prove necessary.

UNITED STATES

Passenger Train Costs

An independent study of the cost of operating passenger trains in the United States is being made by Aeronautical Research Foundation of Cambridge, Massachusetts, at the instance of the Association of American Railroads, which has made a grant of $25,000 for the purpose. The Foundation's research group has freedom to explore, in any ways that it finds desirable, all matters concerning passenger train operating costs which may be regarded as avoidable. The results will be made available by the A.A.R. to all those interested in passenger transport, including the federal and state agencies responsible for regulating traffic.

Mr. W. G. Vollmer, President of the Texas & Pacific Railroad, recently declared that his railway would never be out of the passenger business, that people need passenger trains, and that the aim of the railways should be to offer them the finest and cleanest coaches, the most courteous employees, and the best dining car service possible.

On the other hand, Mr. D. J. Russell, President of the Southern Pacific, has claimed that the private car and the subsidised competition of other forms of transport doom passenger trains on the railways ultimately to extinction, and Mr. W. N. Deramus, President of the Missouri-Kansas-Texas, has agreed by saying that he considers railway passenger service "a lost cause."

PERSIA

Completion of East-West Route

The line between Tatvan, in Turkey, and Kotur, in Persia, is expected to be completed in about two years' time, when it will result in a through standard-gauge route between Haydarpasa, on the Bosphorus, and Teheran, except for the ferry across Lake Van, in Turkey.

FRANCE

Improved Service for Power Station

A considerable tonnage of coal is conveyed by the S.N.C.F. from the Northern and Eastern regions, via Valenton, to the power station at Arrighi, on the down side of the Paris to Choisy-le-Roi line; because of the track layout on this section of line, it was necessary for some 74 trains monthly, destined for Arrighi from the Valenton direction, to cross the Paris-Juvisy track by the Grande Ceinture line near Villeneuve-le-Roi, run via the loop to Juvisy where they were reversed, continue into Paris-Austerlitz where they were again turned and then travel on the down line to Choisy-le-Roi. This was particularly inconvenient at the Austerlitz station, where it interfered with passenger working.

Two-way working was instituted on the down line between signal cabins A and R at Choisy-le-Roi, trains returning from Juvisy crossing to that line and thus obviating the run into Paris Austerlitz. A reversing siding is now being installed off the Grande Ceinture line close to cabin R which will enable trains to be run back across the Paris-Juvisy line to join the down line, where two-way working will enable them to be operated direct to Arrighi, thus obviating the run to Juvisy.

VICTORIA

New Station at Moorabbin

Preliminary work has begun on the new station and road overpass at Moorabbin on the Melbourne-Frankston suburban line.

The project involves: (a) An overpass 71 ft. wide to carry the Nepean Highway over the railway line, eliminating the present crossing; (b) an overpass 66 ft. wide to carry South Road over the line north of the station; (c) lowering the line by 19 ft. and erecting a new station; and (d) a third track to increase line capacity at peak periods.

One platform of the new station will be an island to accommodate the third line, and provision has been made for a fourth track.

The third railway track will be laid between Caulfield and Moorabbin and is part of an overall plan for dealing with expanding traffic on this and other suburban lines. At present there are four tracks to Caulfield from South Yarra. When the Richmond station project is completed extra tracks will be connected between there and South Yarra, giving four tracks through to Caulfield.

Publications Received

A Survey of the Tourist Trade in Scotland, 1956. London: The British Travel & Holidays Association, 64, St. James's Street, S.W.1, or the Scottish Tourist Board, 2, Rutland Place, West End, Edinburgh, 1. Price 5s.—This 18-page booklet confines itself, as regards transport, to the remark that "there must be transport developments," and that it seems likely, in the immediate future, that travel by road will increase further and, here again, access to holiday regions in Scotland may have to be improved." It is a pity that no reference is made to the part played by the Scottish and other Regions of British Railways, and by David MacBrayne Limited, in promoting and catering for tourist travel in Scotland.

British Industrial Plastics.—A booklet of 20 pages issued by the British Industrial Plastics Group of companies describes the organisation and the wide range of applications of plastics with which the group is concerned. Special reference is made to the development and technical services which include a product design unit and mould design advisory service. These service departments will co-operate with manufacturers in all phases of development, design or production planning, as regards the choice and use of materials, production methods, plant or equipment, and examples of the function of these divisions are described and illustrated in this booklet which is obtainable from the Group.

Holidays in the U.S.A. and Canada.—A folder issued by Thos. Cook & Son Ltd. and Dean & Dawson Limited gives details of a great variety of inclusive tours affording rail travel in North America. One tour, designed to be combined with a trans-Pacific or round-the-world journey, includes a railway trip from New York to San Francisco, with stopovers at Philadelphia, Washington, Chicago, the Grand Canyon, and Los Angeles. In view of the limited time at the disposal of most holidaymakers from Britain, most of the holidays are based on Eastern Canada and U.S.A. They are skilfully designed to afford the greatest possible number of visits to places of interest. In view of exchange rates and prices prevailing, the cost of the tours seems to have been kept down to a very moderate price, with good value for money.

Steel Castings.—The application of the cast-weld method of construction for the mountings of diesel engines used in rail traction units is used to illustrate the merits of the process, in a leaflet with the above title. Copies of this publication can be obtained from K. & L. Steelfounders & Engineers, Limited, Letchworth, Herts.

Ten Years of Nationalised Transport—2

Decentralisation of British Railways: formation of Area Boards: first traffic organisations announced

THE first article in this series, which appeared in our issue of September 20, was a summary of the history of events of the 10 years from August 6, 1947, the date the Royal Assent was given to the Transport Act, 1947, as far as they affected nationalised transport. In this article we shall trace in more detail the changes that took place in organisation, particularly as they affected British Railways.

During the wartime period of direct Government control, the organisation of the railways was in essence the same as that used by the four main-line companies before the outbreak of war. A Railway Executive Committee, however, with Sir Ralph Wedgwood as Chairman, was set up at the highest level to ensure that railway resources were used to maximum effect in the furtherance of the war effort. Railway revenues were pooled, thus ensuring that no individual company suffered financially from any inequality of diversion of efforts from normal traffic working.

The four main railway groups, formed by the amalgamation of 123 railway undertakings in 1923 under the provisions of the Railways Act, 1921, had each worked out their own organisations, largely by trial and error, and had adopted rather different systems. The Great Western, Southern, and London & North Eastern Railways all had General Managers. The London Midland & Scottish adopted a system in which an Executive Committee, consisting of a President and three Vice-Presidents, reported to the board. The G.W.R., S.R., and L.M.S. had a departmental chain of responsibility, in which the whole of any given department was responsible, through district and divisional officers, to the head of that department. The head of the department was responsible to the General Manager, or, in the case of the L.M.S., to one of the Vice-Presidents. The L.N.E.R. had an organisation which combined the departmental system with a divisional or area system. Thus there were three Divisional General Managers reporting to a Chief General Manager, and most of the company's business was dealt with on a geographical basis of responsibility. Certain technical functions, such as mechanical and civil engineering, and also finance, were dealt with on an all-line departmental basis. This form of organisation was in being when the railways passed to public ownership on January 1, 1948.

Duties of Railway Executive

The Transport Act, 1947, apart from specifying that "there shall be public authorities known as Executives to assist the Commission in the discharge of their functions . . ." and that the Executives, as agents of the Commission, were to "exercise such functions of the Commission as are for the time being delegated to them . . ." made no organisational provisions. It was apparent, however, that each Executive was to deal with a separate form of transport, and thus, in the very broadest sense, Parliament may be said to have laid down a functional organisation.

The Railway Executive had corporate responsibility for the general management of the railways, and it was also the legal employer of the railway staff. This was something new in railway management, though bearing some relationship to the Executive Committee of the former L.M.S. The Chairman, Sir Eustace Missenden, was undoubtedly chosen for his experience as General Manager of the Southern Railway, but the six other full-time members were chosen for their special qualifications and given departmental responsibilities which extended right down the chain of command. The two part-time members represented industry and agriculture.

Unifying Methods

The Executive had the task of unifying four great railway systems, each with its own individual methods and traditions, into one system which in time was to have, in the original conception, a single code of practice. There was an obvious need of strong direction from the top, strong enough to give firm decisions as to the methods to be used where former Company practices differed. Each company had evolved an organisation and methods which it believed to be the best for its own circumstances, and there would be natural reluctance to replace them by a standard system. The members of the Executive, in all too short a time, had to review company practices and decide which were the best for the new conditions. The changes had to be made with the least possible disturbance, for traffic had to be kept running throughout the six Regions into which the railways had been formed, but the full benefits of unification could not be obtained until they had been completed. In the Regions, the headquarters organisation was in many ways similar to that of the Executive itself, but a Chief Regional Officer co-ordinated work in each Region.

This form of organisation was probably the best that could have been adopted at the time, but it was recognised that it would be essential, later on, to delegate more responsibility to the Regions. The work of unification, however, came first, and this was pressed forward vigorously. Before this had been completed, the Government, in May, 1952, issued a White Paper containing proposals for legislation which, among other things, would abolish the Railway Executive and decentralise the railway organisation. A year later, on May 6, 1953, the Transport Bill, 1953, received the Royal Assent. On August 19, 1953, Mr. Alan Lennox-Boyd, who was then Minister of Transport & Civil Aviation, made the British Transport Commission (Executives) Order, 1953, abolishing the Railway, Road Haulage, Docks & Inland Waterways, and Hotels Executives with effect from October 1, 1953. This was a political decision, and whether it was right or wrong will always be an arguable point. The railways, just as they had after the 1923 grouping, were already moving steadily towards decentralisation, but it is doubtful whether the Railway Executive can be held to have completed even the major part of its task. A little longer life for the Executive might have been well worthwhile for the economies of scale it could have brought. On the other hand, there is much to be said for the spur of competition, and the Regions may have been stimulated to extra efficiency by it. The subject is one which can be debated endlessly by railway economists. The two courses represent two schools of political, as well as economic, thought, and whether the railways suffered or were saved by the 1953 Act can never be proved. The only lesson that is clear is that a great basic industry such as transport, if it is to serve the country to the best of its ability, should be kept out of politics.

Interim Organisation

The 1953 Transport Act required that a statutory scheme of re-organisation for the railways should be introduced, but an interim stage was necessary to cover the period between the abolition of the Railway Executive and the introduction of the statutory scheme. The interim organisation came into effect on October 1, 1953. Under it, the Commission took control of policy and general direction as its part, transferring departmental authority to the Regions. The Regional departmental officers were made responsible to the Chief Regional Officers, who were re-styled Chief Regional Managers and given additional powers. Among the matters for which the Commission assumed direct responsibility were the design, manufacture, and standards of maintenance of locomotives, rolling stock, permanent way, and signalling; labour relations (except minor matters); the general level of charges; the wider aspects of financial control, commercial policy and relevant national negotiations, and the inter-Regional distribution of freight rolling stock. This made it necessary for the staff of the Commission to be increased, and the staff of the disbanded Executive was merged

with that of the Commission. The heads of the departments set up to deal with matters at Commission level were not, however, functional in the sense that they issued orders on their own authority to the corresponding departmental heads in the Regions. Their function was advisory—advice being tendered both to the Commission and the Regions as required. The existence of such officers, in close touch with departmental matters in the Regions, was of great assistance in inter-Regional co-ordination. As regards matters reserved by the Commission to itself, the heads of departments issued implementing instructions to the Regions based on major policy instructions issued by the Commission secretariat.

Reorganisation Scheme

From this point the Commission set out to draw up the proposals for the reorganisation of the railways which, under Section 16 (1) of the 1953 Act, had to be submitted to the Minister within 12 months from the passing of the Act. It was submitted on April 15, 1954, and the Minister, as required by the Act, consulted with bodies "representative of classes of persons likely to be specially affected by the scheme . . . and with the National Coal Board. . ." The consultations showed the scheme to be generally favoured and the Minister accepted it as submitted. It was issued as a White Paper in July, 1954.

Before dealing with this very important scheme, it should be said that the other Executives which had been abolished by the 1953 Order were replaced by Boards of Management or committees. The London Transport Executive, which was not included in the Order, continued to function as a corporate entity under the general direction of the Commission.

The Railways Reorganisation Scheme, 1954, was a development of the interim scheme. The Commission emphasised, and the Minister agreed, that the scheme must be widely drawn and flexible if it was to facilitate "an orderly and fruitful development of centralised management." The Regions were regarded as such large systems that they must eventually be broken up into smaller regions or undergo some decentralisation of management within themselves. The Commission took the view that this would provide railway users with a more direct contact with effective railway authority, would remove any feeling among the staff that they were remote from the management, and would increase efficiency by affording more effective supervision and co-ordination, as well as encouraging initiative from below.

Area Boards

There had been considerable discussion as to whether the area authorities required to be set up under the Act should be individuals or bodies, and, if bodies, whether they should be corporate or un-incorporated. There were many who thought that the Chief Regional Managers, possibly re-titled, should be the area authorities, but in the event the Commission decided to set up Area Boards, with "proper precautions to ensure that they understood their rôle and were imbued with a sense of loyalty to the Commission as a whole." The members of these boards were to be drawn in part from outside the railway industry and were to be capable of bringing to the boards "a close knowledge of public and business requirements in respect of transport." They were not, however, to be representatives of particular interests. In effect, they were to resemble in many ways the former railway company boards.

It must be said at once that this system apparently has worked well in practice, and that the Area Boards are now accepted by most railwaymen as performing a useful function. At the time, however, there was much misgiving that one layer of management, the Railway Executive, having been removed, another, the Area Boards, should be introduced. They were seen as a possible barrier between the Chief Regional Managers and the Commission. It is evident that the Minister himself had some doubts, for he asked Sir Brian Robertson, Chairman of the Commission, to clarify the relationship proposed between the Commission, the Area Boards, and the Chief Regional Managers. Sir Brian Robertson stated that the Commission was a policy-forming body, and that the Area Boards were also policy-forming at area level, and supervisory, but were not intended to be executive organs of day-to-day management. Nevertheless, he declared that certain items of day-to-day management required general treatment. Wagon stock, for example, needed so managing that it could be put to the best possible use throughout the country. Also, certain large undertakings preferred to do business with British Railways as a whole. The focus for such matters had to be within the headquarters of the Commission. Direct contact must exist between the executive element within the Commission and the Chief Regional Managers. This contact was not intended to be a by-passing of the Area Board, but "merely two policy making bodies freely admitting that a number of day-to-day matters can be settled by their executive organs." The chain of responsibility, he affirmed, was from Commission to Area Board, and from Area Board to Chief Regional Manager.

Duties of Area Boards

The members of the Area Boards are appointed by the Commission. Each board is limited to seven members, including the Chairman, and one or more of the members is a Member of the Commission. The Area Boards are not incorporated bodies and the Commission remains the employer of the staff. Besides such duties as have already been mentioned, the boards have the duty of promoting initiative in improving services and making economies; submitting budgets and forecasts of capital and revenue expenditure as required; exercising such powers as the Commission grants in respect of approval of expenditure, appointments, establishments and so on; maintaining contact with railway users; and encouraging loyalty and *esprit de corps* among the staff. The Area Boards can also be called on to carry out non-railway functions of the Commission, if these are delegated to them. The good sense of the individuals concerned in this rather complicated and far from clear relationship between Commission, Boards, and Managers has succeeded in making it a reasonable working possibility.

After debate in Parliament, an Order was made for the introduction of the scheme from January 1, 1955. On the same day, the Chief Regional Managers of the six Regions were re-designated General Managers. Also on the same day, the operating department of the Eastern and North Eastern Regions, which had been working as one department with headquarters in London and divisional offices in each Region, was split into two departments, one for each Region, with headquarters in London and York. This was the forerunner of much more sweeping traffic re-organisations, which made their first appearance in the Eastern Region.

Traffic Reorganisation

On December 12, 1955, the Eastern Area Board isued a statement on re-organisation. The Board proposed to abolish the separate positions of Chief Commercial Manager and Chief Operating Superintendent, and to create a post of Assistant General Manager (Traffic) on whom the functions of the former two officers, and certain other functions, would devolve. District operating, motive power, and commercial responsibilities were to be given to a number of Traffic Managers.

The first Traffic Manager was appointed in June, 1956. He took over management of the London, Tilbury & Southend line, which is a convenient geographical unit but also has problems of its own which will be solved only by electrification. This was followed in March by two others, the Line Traffic Manager (Great Northern) and Line Traffic Manager (Great Eastern). The three Line Traffic Managers were to report directly to the Assistant General Manager (Traffic). They are, however, in practice allowed a high degree of autonomy on traffic matters. At a lower level, seven Traffic Managers were appointed to take charge of combined local organisations exercising a greater degree of authority in day-to-day matters than has ever previously been delegated to such a level.

In June last, the London Midland Area Board announced its proposals. They consist, at their highest level, of combining the functions of the Chief Commercial Manager, Chief Operating

(*Continued on page* 392)

Construction of Culverts by Thrust Boring

Pipeline technique adapted for use under railway tracks

Horizontal thrust boring machine driving a culvert through a railway embankment near Staines, Southern Region

SOME major problems associated with the construction of culverts beneath busy railway lines and roads and yet avoiding interruption to the normal flow of traffic while the work is being undertaken, are overcome with the application of a horizontal thrust boring machine. Thrust boring presents a speedy and convenient method of lined culvert excavation work, eliminating the need for expensive vertical excavation and fill operations with consequent interference to rail, road, or canal traffic.

Drainage Scheme

A recent example of the operation of the machine has been in connection with the construction of a main drainage scheme in the Staines, Middlesex, area, which has involved the driving of culverts beneath a number of roads and Southern Region railway tracks.

The machine, now being operated in this country by Costain-John Brown Limited, is powered by a 50-h.p. petrol engine and consists of a rotary cutting head, driven by a cutter bar, and a spiral conveyor which carries the earth displaced at the "face" back through the lining and deposits it behind the machine. The cutting head operates immediately in front of the leading edge of the culvert liner tube. This tube is drawn forward, as the cutter removes the soil, by a winch geared to synchronise earth removal and liner advance. This winch is located on the machine structure and its cable is connected to a "deadman" anchorage near the culvert entrance.

The machine is saddle-mounted on the culvert liner and secured to it by twin girths. As the cutter head bores into the earth, the winch pulls the liner into the cavity which has been formed. As a result of this system of close and progressive lining, it is stated, there is no possibility of subsidence.

The thrust boring machine which was engaged on the Staines drainage scheme drove a 130-ft. culvert of 2-ft. dia. under the Waterloo-Reading main line near Staines Central Station, Southern Region, and a road running alongside the line. As the drainage scheme is gravity circulated it is important to achieve extreme accuracy in driving these culverts. A deviation of only 1½ in. is permitted from the design axis. However, in driving a 120-ft. culvert under a main road in the area recently, an error of only $\frac{5}{16}$ in. was recorded in practice.

Capacity

The boring capacity of this machine is from 24 to 42 in. in 2-in. stages and the normal limit for length of culvert is 200 ft., according to the pipe dia. and type of ground. The machine can bore through any substance except solid rock and it can handle boulders smaller than the internal dia. of the pipe. The rate of boring depends on the type of substance encountered but, in favourable conditions, a progress rate of 1 ft. per 2-3 min. is normal.

To place the machine in position for boring, a "tail pit" is required. Ideally, this pit should be 15 ft. longer than the actual bore, 7 ft. 6 in. wide, and at a depth not less than 2 ft. below the invert of the sleeve pipe. It is not always possible, of course, to obtain an ideal working area for the tail pit, but it should be at least 35 ft. long.

The machine is reasonably small and weighs some 6,100 lb. A D.7 caterpillar tractor fitted with a sideboom attachment is used to stabilise the machine, which tends to tilt in the direction of the auger's rotation. The tractor also assists greatly in maintaining correct alignment. The boring unit is completed by an electric welding machine used to weld sections of pipe together.

Horizontal thrust bore units were used for some time by Costain-John Brown Limited on its own pipeline contract work, but the interest shown by other bodies in the technique of the machine led to the company offering to contractors and public organisations a thrust boring service ranging in dia. from 10 in. to 42 in. Self-contained teams of operators with all the necessary equipment and transport are now able to operate anywhere in Britain. In the case of the operations described, the machine was operated on behalf of the main contractor for the scheme, Willment Bros. Ltd.

Ten Years of Nationalised Tranport—2

(*Concluded from page* 391)

Superintendent, and Motive Power Superintendent of the Region under one officer, the Director of Traffic Services. The Region is to be divided into six geographical Divisions, in each of which there will be a Divisional Traffic Manager. The District officers of the Commercial, Operating, and Motive Power Departments will be responsible to their respective Divisional Traffic Managers. Each Division will have its own traffic costing, public relations, and other services and in time will become a self-accounting area.

It may seem remarkable, with all the changes that have taken place, that British Railways have achieved as much as they have in postwar rehabilitation and modernisation. It speaks well for the tenacity and resilience of the British railway officer that he has not allowed organisational upheavals and uncertainty to turn him aside from his main task of running the railways.

(*To be continued*)

POSSIBLE CLAIM FOR SHORTER HOURS FOR BUSMEN.—During the hearing of an application for higher bus fares by Newcastle Corporation recently, Mr. Frank Taylor, General Manager, Transport Department, told the Northern Traffic Commissioners that bus undertakings are likely soon to be faced with a demand for a 40-hr. week for busmen without reduction in pay. The Corporation was granted permission to put an increased fare scale into operation from November 1 next.

Design and Construction in Main-Line Electrification—2*

Overhead line equipment design and application: field construction work

HAVING developed an up-to-date picture of the tracks by preparation of a track plan, as described in Part 1, it is now possible to consider the design of suitable overhead line equipment. The Chief Mechanical & Electrical Engineer's Department of the Region concerned, develops a feeding and sectioning scheme, based on information to meet the operating requirements, which has been agreed by all railway departments concerned. This information is supplied to the Contractor.

Using established principles of design an overhead line scheme is drafted which meets the operating requirements of the section. Each structure is sited to avoid ground obstructions wherever possible, and signal siting is considered so that structures are not placed in obstructing positions. At this stage it is necessary to consider the way in which each span of the overhead equipment will sag, especially in the vicinity of level crossings and overbridges.

Walkout Inspection

After preliminary discussion, a walkout inspection party formed from contractors and railway departments, inspects individual structure locations on the ground. The finer points of each structure are discussed so that a satisfactory and mutually-agreed solution is produced. The points of agreement are recorded in note form for the guidance of the organisation installing the equipment.

Having agreed the basic principles for the layout, the site design office work becomes much more detailed. A profile of the overhead line is calculated, based on the parabolic form, which is a very good approximation, and the clearances to overhead obstructions such as signal gantries are examined with precision. When the overhead line is to pass under an overbridge the clearance details are most critical and an individual study is made for each bridge.

A cross section of the track work is prepared for each structure location, to a scale of $\frac{1}{8}$ in. = 1 ft. All drainage and relevant ground details are shown. The design office indicates the outline of the structure on this drawing and at the same time the loading on the structure is investigated and indicated on a copy of this cross section. This loading diagram shows the loads which are due to the dead weight of the equipment and also the radial load due to the stagger of the overhead wires and the windage on the line. This diagram is sent to a structural design office where a suitable structure is designed or a standard structure allocated to the location.

A bridge equipment design drawing is prepared for each overbridge, showing how it is proposed to support the overhead equipment under the bridges. This is based on the information gained on the previous bridge survey and the knowledge of any reconstruction to be done by the Chief Civil Engineer's Department to obtain the necessary electrical clearances.

While all the site office work is proceeding, a headquarters office establishment is designing complete structural work so that a fair range of standard overhead line structures is available for allocation to suitable sites and specially-designed structures are developed for the more difficult locations. Most special structures are on fairly long deliveries and it is essential that the site design work is cleared rapidly for such locations, so that possible delays to field construction work are avoided.

The headquarters establishment also designs all the small items of steelwork required to hold insulators and fittings to the main structures. The small fittings which go to make up the overhead line equipment also are designed here, together with the associated assembly drawings. This organisation also produces the technical information required by site design offices and field installation teams in their erection and wire tensioning processes.

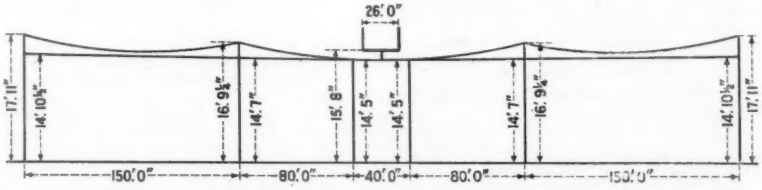
An estimating section performs a quantitive survey of the line to be electrified and as a result of these investigations advance orders are placed for a sufficient quantity of fittings and conductors to enable the work to proceed without delay. Often these quantitive estimates are based on the most preliminary of information and the site design office normally confirms or

E.M.L. MAIN LINE ELECTRIFICATION. WALKOUT NOTES Sheet 3.

Section of Line: STYAL LINE (BURNAGE - SLADE LANE JUNCTION)

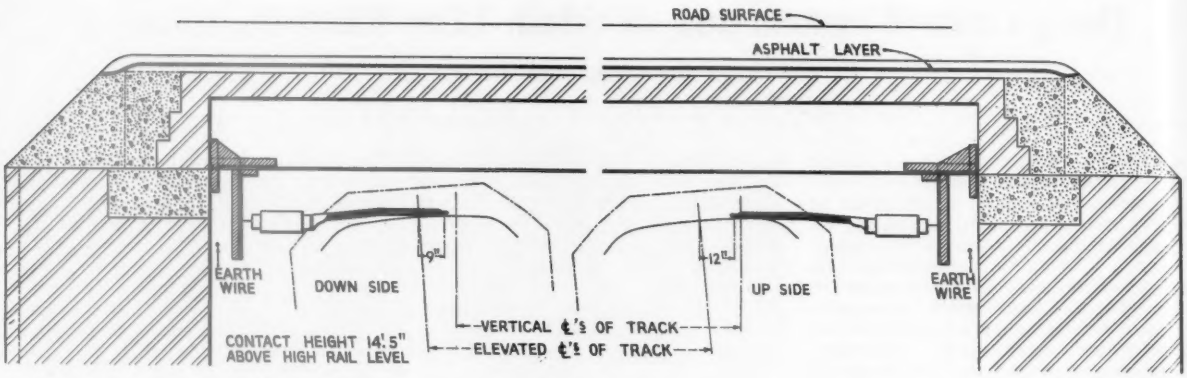
DOWN			Structure Locations	UP		
Action to be taken by	Remarks	Spoil disposal		Spoil disposal	Remarks	Action to be taken by
			8 + 1017	On Site	Mast to be placed at 7ft clearance steel face to No. 2 siding outer rail.	
			8 + 1037		Mast to be placed between Up Main & No.1 Siding at 7ft clearance steel face to siding clear of new pipe drain.	
	Mast to be placed at 8'9" clearance steel face to track.	On Site	8 + 1107	"	Mast to be placed between Up Main & No.1 Siding at 8'6" clearance steel face to Up Main and clear of new pipe drain.	
	No.1 Siding	...	(8 + 1237) (8 + 1347)	"	Mast to be placed between Up Main & No.1 Siding at 8ft clearance steel face to Up Main and clear of new pipe drain.	

A section of the walkout inspection notes



Typical profile in the vicinity of an overbridge

* Part 1 appeared in our issue of September 27



Arrangement of equipment at overbridge No. 5, Styal Branch, Crewe-Manchester line

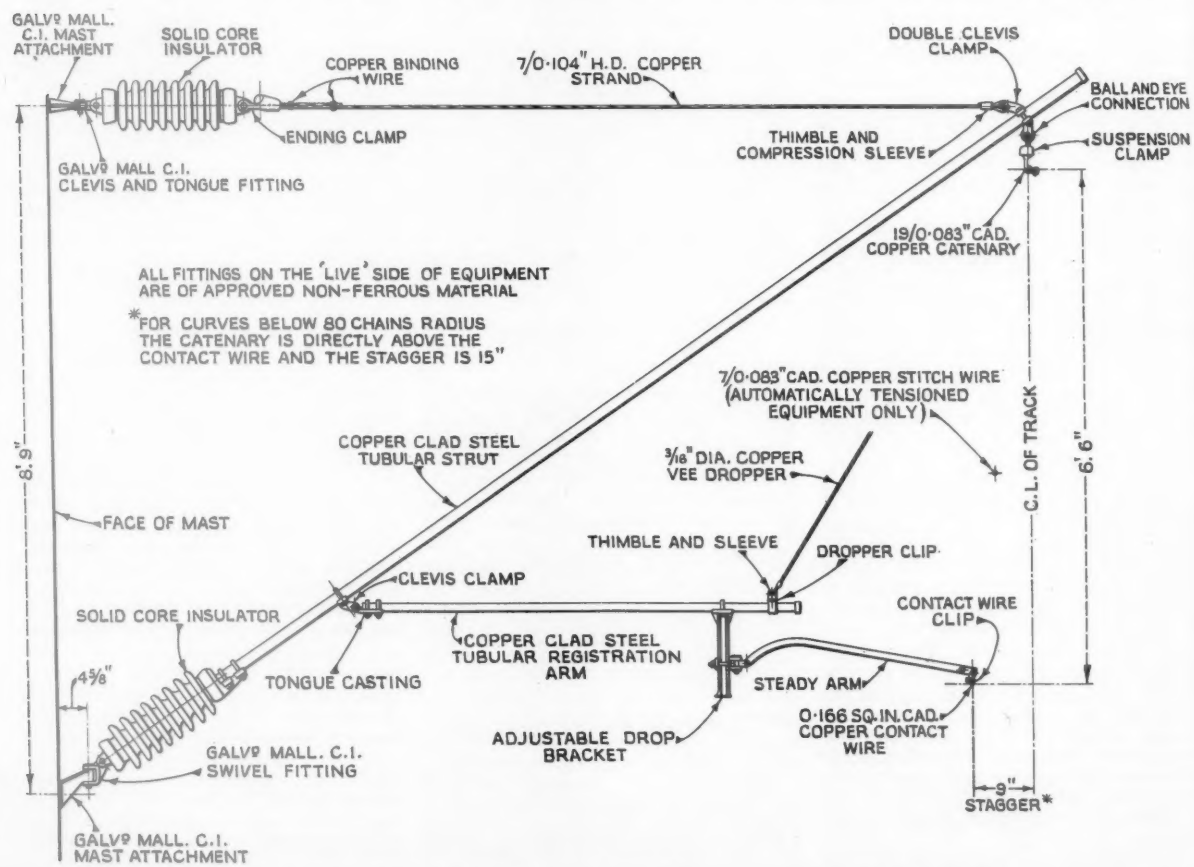
adjusts these quantities as precise details become available.

The site organisation applies the headquarters establishment designs to the requirements of the overhead equipment layouts, and so all the information for the field installation teams becomes available. This information, and those responsible for its production, is as follows: Track layouts and profiles (Chief Civil Engineer); an overhead equipment layout plan (site office); an electrical section diagram (Chief Mechanical & Electrical Engineer); a copy of the walkout inspection notes (the Chief Mechanical & Electrical Engineer); an overhead line profile (site office); individual cross sections for each location (site office); bridge equipment design drawings (site office); foundation structure and fittings assembly drawings (the headquarters establishment). Once the supplies have been delivered to site, field construction work can commence.

To carry out the construction work with speed and efficiency, the greatest possible use is made of rail-mounted mechanical plant for the excavation and concreting of foundations, in order to utilise fully the track possessions which are arranged.

Construction

A rail-mounted Auger borer drills a cylindrical hole approximately 10 ft. deep. A steel frame is then fitted over the hole, and a rail-mounted crane positions a steel mast within it, at the


GALVº MALL. C.I. MAST ATTACHMENT
SOLID CORE INSULATOR
COPPER BINDING WIRE
7/0·104" H.D. COPPER STRAND
DOUBLE CLEVIS CLAMP
BALL AND EYE CONNECTION
ENDING CLAMP
THIMBLE AND COMPRESSION SLEEVE
SUSPENSION CLAMP
GALVº MALL C.I. CLEVIS AND TONGUE FITTING
19/0·083" CAD. COPPER CATENARY
ALL FITTINGS ON THE 'LIVE' SIDE OF EQUIPMENT ARE OF APPROVED NON-FERROUS MATERIAL
*FOR CURVES BELOW 80 CHAINS RADIUS THE CATENARY IS DIRECTLY ABOVE THE CONTACT WIRE AND THE STAGGER IS 15"
7/0·083" CAD. COPPER STITCH WIRE (AUTOMATICALLY TENSIONED EQUIPMENT ONLY)
COPPER CLAD STEEL TUBULAR STRUT
3/16" DIA. COPPER VEE DROPPER
C.L. OF TRACK
6' 6"
8' 9"
FACE OF MAST
THIMBLE AND SLEEVE
DROPPER CLIP
CLEVIS CLAMP
CONTACT WIRE CLIP
SOLID CORE INSULATOR
COPPER CLAD STEEL TUBULAR REGISTRATION ARM
4 5/8"
TONGUE CASTING
STEADY ARM
0·166 SQ. IN. CAD. COPPER CONTACT WIRE
ADJUSTABLE DROP BRACKET
GALVº MALL. C.I. SWIVEL FITTING
9" STAGGER*
GALVº MALL. C.I. MAST ATTACHMENT

Assembly of cantilever for tangent track and light curves down to 55 chains radius

correct level and setting from the track. A concrete mixer, often electrically-driven and fitted with a discharge conveyor, pours concrete at a high rate into the excavation. When steelwork is not available for immediate erection, a centre cavity is formed to accommodate the steelwork when delivered at a later date. In carrying out this excavation work, a fair amount of flexibility is required as railway ground is very varied in character and the proximity of drains and old underground obstructions, which are often encountered, calls for a high degree of personal supervision on the part of the Foundation Engineer.

Structural steelwork is loaded from the stores on to the wagons in the correct order for unloading, and a steelwork train complete with diesel crane conveys the material to site. Working under track occupation conditions steelwork is quickly slung into place and following ground crews level and bolt the members. Single-track cantilever masts present no difficulties in erection but the larger fabricated portal structures often require considerable ingenuity in erection techniques. This work is carefully co-ordinated by the Chief Mechanical & Electrical Engineer's Department so as to cause the minimum interference to the commercial operation of the line.

The point of contact between the structure mast and the foundation is capped to provide an effective rainwater shed and the steel concrete line is usually further protected by a Bitumastic coating.

Conductors

When the erection of overhead structures has been completed, preparations are made for the running out of conductors. Again the greatest possible use is made of rail-mounted equipment. The catenary is pulled out from a drum mounted in a reel wagon which is included in a wiring train. Wiring crews pass the catenary over rollers which are fixed at each suspension point on the structures or cantilevers. The catenary wire is then pulled up to a suitable erection tension. This tension is calculated, so that, with the addition of contact wires and droppers, the catenary takes up a working tension of about 2,000 lbs. This figure is standard on a.c. schemes for British Railways, under normal temperature conditions. The tension rises under extreme weather conditions.

The train crew then erect the suspension droppers which support the contact wire from the catenary. These are made to calculated lengths from 1½ in. to 8 ft. and erected to correspond to the varying height between the catenary in its loaded state and contact wire. They are set to precise spacings, the maximum being 20 ft. The distance between the catenary and contact wire below a structure is usually about 6 ft. The contact wire is then run out and clipped into position. Great care is taken to avoid kinking of this conductor. The contact wire is pulled up to its correct tension, and the equipment is then ready for the final adjustment. British Railways a.c. schemes have a contact wire tension of 2,000 lbs. under normal temperature conditions.

Auger borer operating at normal boring distance from the rail

Small teams of linesmen go over the equipment making many adjustments to ensure that the overhead equipment is set at the correct height and stagger and that the gradient of the contact wire does not exceed the design limits. Switches are mounted on the overhead structures and connected into the equipment and feeder cables are installed in their trough routes. When all the adjustment work is finished suitable electrical pressure tests and pantograph running inspections are performed. When these tests are proved satisfactory the line is ready for energising.

The complete work is the result of a carefully co-ordinated programme arranged between the Contractor and the Chief Mechanical & Electrical Engineer's Department, to which he is responsible, and all other Railway Departments. Liaison is required at all times to ensure that the work progresses both speedily and efficiently.

(Concluded)

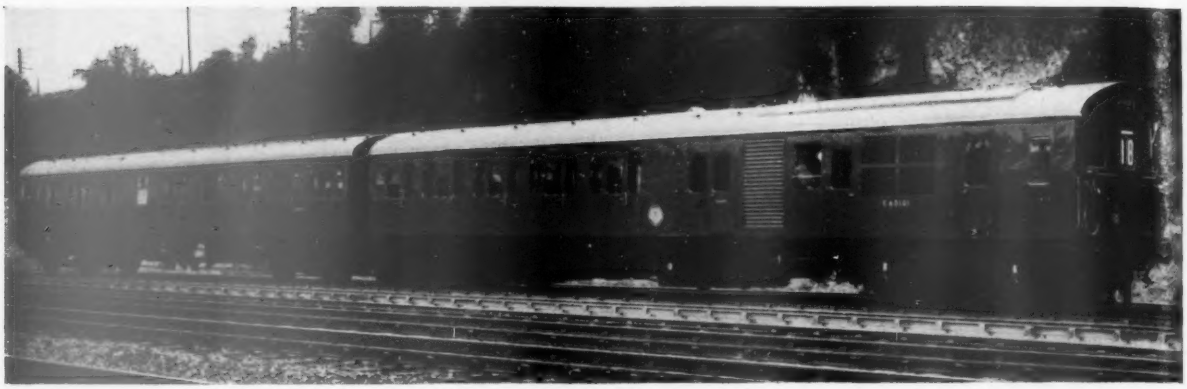
REPAIRS TO MONTROSE VIADUCT.—Maintenance work necessitates closing the South Esk viaduct at Montrose, Scottish Region, each weekend from 5 a.m. Sunday till 5 a.m. Monday for about five months from October 6. During this period Sunday trains between Edinburgh Waverley and Aberdeen are being diverted via Perth and Bridge of Dun and there will be no through service in either direction to Montrose or from stations between Aberdour and Arbroath to Stonehaven and Aberdeen. Train services, however, are maintained between Edinburgh, Fife towns, Dundee, and Arbroath and there is a special service between Dundee Tay Bridge and Perth in connection with the Edinburgh-Aberdeen trains. For passengers travelling between Arbroath, Montrose and Aberdeen a special bus service links Arbroath and Montrose with Bridge of Dun station, where calls will be made by all the Edinburgh-Aberdeen trains. The South Esk viaduct, built in 1881, carries the Edinburgh-Aberdeen East Coast main line over the Montrose basin. It is a single track structure of 16 lattice girder spans totalling 1,460 ft. in length. The work consists of stripping the timber deck and replacing with prefabricated steel units. These units will be welded together and to the cross girders to form a complete deck. It is intended to treat one span each weekend.

SEAT RESERVATION FACILITIES IN THE WESTERN REGION.—The Western Region of British Railways is to introduce seat reservation facilities on certain through express trains at specified stations in the London suburbs, in South Wales, and at Bath Spa. The new arrangements take effect on October 7, and the trains and stations concerned are: 7.55 a.m., Paddington to Milford Haven, on which seats may be reserved by passengers entraining at Slough; 8.55 a.m., Paddington to Pembroke Dock, on which seats may be reserved by passengers joining at Reading; 9.5 a.m., Paddington to Bristol and Cheltenham, on which reservations may be made from Reading; 6.30 a.m., Swansea to Paddington, on which passengers entraining at Neath, Port Talbot and Bridgend may reserve seats; and 8.30 a.m., Bristol Temple Meads to Paddington, on which seats may be reserved by passengers joining at Bath Spa. Formerly, seats could be reserved only from the starting points of the trains.

REDUCED FARES FOR STUDENTS.—At its annual conference at Margate last week the National Association of Divisional Executives for Education passed a resolution asking the executive committee to try to secure from the British Transport Commission cheap travelling facilities for pupils aged over 18 in full-time education.

Diesel-Electric Sets for Hampshire Lines

Southern Region introduces 500-h.p. two-car trains on cross-country services



Two-car 500-h.p. multiple-unit set introduced by Southern Region

IMPROVED schedules on certain Southern Region lines in the Hampshire area, which came into operation with this year's winter timetable revisions on September 16, have been made possible by the introduction of a number of 500-h.p. diesel-electric trains of two-car formation. These sets, which were the subject of editorial comment in our issue of August 9, incorporate construction and equipment which is similar to, and in some cases identical with, the 1,000-h.p. six-car diesel-electric sets for the Hastings-London main line (via Tunbridge Wells) described in our issue of May 10. Each set is powered by one engine of the English Electric 4SRKT type of which two are installed in the Hastings trains, and generators, auxiliary equipment and other details are also the same in the two trains.

The twin-car set comprises a railcar and a control trailer. Each is 63 ft. 5 in. over headstocks and they have similar underframes and principles of body construction. The length over buffers of a twin set is 133 ft.

The cars are of open saloon type, except for the first class accommodation which is arranged in compartments. The railcar contains an engine room 19 ft. 3 in. in length, an 8-ft. 3-in. luggage compartment, and seats for 52 second class passengers; no lavatory is fitted, however. The control trailer contains 13 first class and 62 second class seats and two lavatories. Empty weight of a set is about 87 tons.

Underframes and bodies are of all-steel construction and follow British Railways standard design for passenger coaches of this type. The inside surfaces of the side panels have heat and sound insulation of sprayed asbestos and Fibreglass. Inner panel plates, ceiling, and partitions are of plastic material.

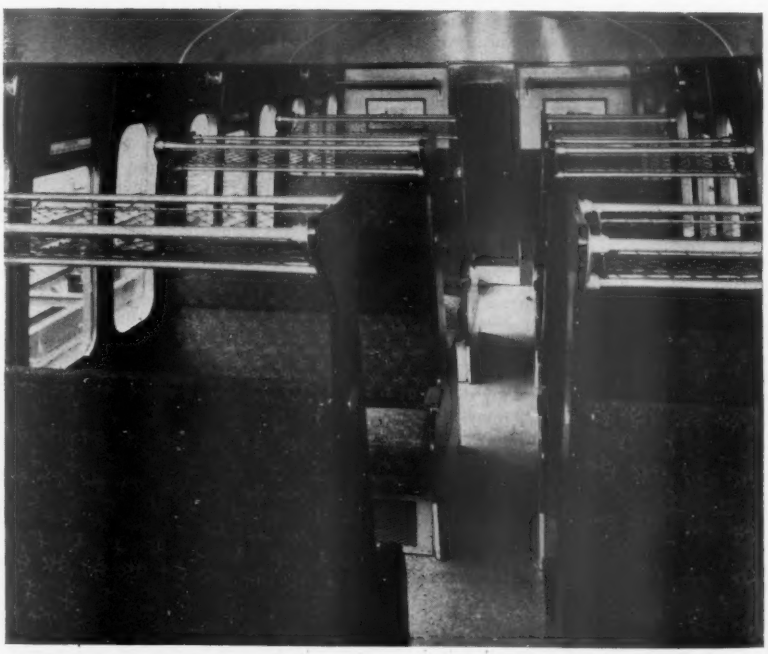
Bogies are of standard S.R. electric stock design with inside swing links and Hoffmann roller bearing axleboxes. Wheelbase of railcar bogies is 8 ft. 9 in., and of trailer bogies, 8 ft. 6 in.; bogie pivot pitch is 46 ft. 6 in. for both cars.

Engine Room

As with the Hastings trains, the engine-generator group has a three-point rubber mounting, and all pipes in the engine room are arranged so that the complete unit can be changed in the minimum of time. The engine-generator group, which weighs some 11 tons with support points and mounted auxiliaries, can be lifted out through a removable hatch in the roof of the engine room and a serviced unit replaced in the same way. Three external doors provide access to the engine room; one is positioned alongside the power unit for maintenance purposes only.

Ventilation of the engine room is provided by the radiator fan, which draws air past the engine and into a fan compartment as well as drawing in cold air through the radiator.

The 330-kW. main generator supplies two nose-suspended traction motors carried on the rear bogie of the railcar. These motors are identical and interchangeable with the motors used on the Southern Region multiple-unit electric stock. Brakes are of the standard Westinghouse electro-pneumatic type.



Second class open saloon showing arrangement of seating and luggage racks

RAILWAY NEWS SECTION

PERSONAL

Mr. W. A. B. Hopkin, at present Director of the National Institute of Economic & Social Research, has been appointed Secretary of the Council of Prices, Productivity & Incomes.

Mr. J. E. Whitehouse, A.M.Inst.T., who, as recorded in our August 2 issue, has been appointed Regional Welfare Officer, London Midland Region, British Railways, was educated at Derby School and joined the L.M.S.R. as a junior clerk at Trent in 1936. After gaining station experience as a relief clerk he was transferred to the office of the Superintendent of Organisation & Staff at Derby. During the war Mr. Whitehouse served with the 2nd Bn. Worcestershire Regiment and, later, the Indian Engineers. After the war he served successively on the Staff & Detailed Analysis Committee of the District Goods Manager's Office, Birmingham, and as a District Inspector in the District Operating Superintendent's Office, Birmingham. In 1952 he was appointed Area Welfare Officer, Rugby, and, in 1955, Recruiting Officer, Birmingham. He was transferred to Euston in 1956 as Assistant Regional Welfare Officer. Mr. Whitehouse is an Associate Member of the Institute of Welfare Officers, of which body he is a Member of the Executive Council and a past Chairman of the Midland Section. He is President of the Rugby Division of the St. John Ambulance Brigade.

The following changes have been announced by Hadfields Limited:—

Dr. J. R. Rait, Research Controller, Hadfields Limited, leaves the service of that company at the end of this month to become Joint Managing Director of the Briton Ferry Steel Co. Ltd., a subsidiary of Duport Limited. With effect from October 1, Dr. T. H. Arnold becomes Research Controller & Local Director of Hadfields Limited, and a director of Hadfields Steels Limited, and Hadfields Forgings Limited. Dr. L. G. Finch has been appointed Deputy Research Controller; Mr. D. R. Eastwood, Deputy Chief Engineer, has been appointed a Local Director of Hadfields Limited and Director of Hadfields Foundry & Engineering Co. Ltd., with effect from October 1, 1957; and Mr. S. Leetch, Works Controller, is retiring on September 30 next.

Mr. Leo Henry Kent Neil, Continental Traffic & Shipping Manager, Eastern Region British Railways, who, as recorded in our September 27 issue, will retire on October 5, 1957, was educated at Forest School. He joined the former Great Eastern Railway in the Chief Accountant's Department at Liverpool Street in 1908 and five years later transferred to the Goods Manager's Department. A year later, after service at principal good stations, he returned to headquarters and, after fusion of the Passenger and Goods Departments under a Traffic Manager, he gained experience of passenger traffic. In 1915 he was commissioned in a line regiment of the Territorial Army and, in 1917, was seconded to the Railway Transport Establishment. On demobilisation in 1919, he returned to the G.E.R. in the Commercial Manager's Department. In 1921 Mr. Neil became Chief Assistant to the G.E.R. General Continental Agent in Paris. In 1924 he went to Brussels as the L.N.E.R. Agent. Six years later, he returned to Britain as Assistant to the Continental Traffic Manager and, in 1940, was made Assistant Continental Traffic Manager. During the war, when railway steamship services with the Continent were suspended, he became London City Manager, in which capacity he was responsible, on the goods commercial side, for the L.N.E.R. interests in London and the dock area, including liaison with the London markets. He was appointed Continental Traffic Manager, L.N.E.R., in December, 1943, and continued to hold the dual appointment of London City Manager until January, 1945. After nationalisation, he became Continental Traffic Manager, Eastern & North Eastern Regions and, at the beginning of 1956, assumed the additional responsibilities of Manager (Shipping Services) with the title Continental Traffic & Shipping Manager, Eastern Region. Mr. Neil has regularly attended the meetings of the International Union of Railways and of the European Passenger Timetable & Through Carriage Conference. He has been twice Chairman of the Dutch Section of the Continental Rail & Water Carriers' Conference and is a member of the Council of that body. He was a member of the committee appointed by the railway General Managers which conduct investigations whereon was based the Rail-Air Plan of 1944 and has been a member of the Control Committee of associated Humber Lines, a nominee Director of the Wilsons & North Eastern Railway Shipping Company and of the Hull & Netherlands Steamship Company. He is Vice-Chairman of the Anglo-Belgian Train Ferry Company. He is a former member of the Council of the Institute of Transport and was the recipient of a British Transport Commission award in 1954 for a paper read before the Institute on the future of traffic between Great Britain and the Continent. Mr. Neil played a prominent part in the initial discussions at Berne which led to the participation of Great Britain in the revised Berne Conventions. These, which came into force on March 1, 1956, govern conditions of rail transport of passengers and goods in international traffic. Mr. Neil is a Knight of the Order of the Dannebrog and an Officer of the Order of Oranje Nassau.

Mr. L. H. K. Neil

Continental Traffic & Shipping Manager, Eastern Region, who is retiring

Mr. W. C. Clegg, Assistant Purchasing Agent, Metropolitan-Vickers Electrical Co. Ltd., has been appointed Purchasing Agent as from July 29, 1957, replacing Mr. G. T. King who retired from executive duties on that date. Mr. Clegg joined Metropolitan-Vickers on January 1, 1956, as Assistant Purchasing Agent. He was formerly Purchasing Agent for Ferguson Pailin Limited, having joined that company as an apprentice in 1920. Following his apprenticeship and several years in the company's Drawing Office, he transferred to the Sales Engineering staff and, in 1940, was made Chief Estimator. He became Purchasing Agent in 1945 and retained this position until joining Metropolitan-Vickers.

The Expanded Metal Co. Ltd. has reorganised its sales force into four separate divisions with a manager in charge of each. The four divisions are Building, Industrial, Stockists and Export, and managers are respectively Mr. R. H. Owens, Mr. F. W. Hunt, Mr. K. C. M. Chaplin, and Mr. R. H. Carini. The new managers will be responsible to the General Sales Manager, Mr. Edgar Prentice. Supporting the efforts of the new divisions will be the company's sales offices, in London, under the direction of Mr. W. T. Dear (London Commercial Manager), and at the Stranton Works, West Hartlepool, under Mr. F. A. Hughes (Works Commercial Manager).

Mr. G. W. Brown, acting Personnel Manager, New Zealand Railways, has been appointed Assistant General Manager of the system, with responsibility for staff and general administration. He will also be responsible for the co-ordination at management level of all staff matters and will control much of the day-to-day general administrative work of the department. Mr. F. R. Murray, Transportation Superintendent, is to have increased authority and will control all the work of the traffic branch. Mr. H. Z.

Mr. L. L. Brown

Appointed Regional Representative, Uganda, East African Railways & Harbours

Mr. J. W. Christopher

Appointed District Operating Superintendent, Kings Cross, Eastern Region

Mr. F. H. Bye

Appointed Staff & Administrative Assistant to Chief Civil Engineer, Paddington

Purchase, District Mechanical Engineer, Wellington, will be Inspecting Engineer (Mechanical & Electrical), with responsibility for oversight and control of all "non-steam" traction.

Mr. L. L. Brown, District Traffic Superintendent, Nairobi, East African Railways & Harbours, who, as recorded in our September 20 issue, has been appointed to the newly-created position of Regional Representative, Uganda, will act as the Administration's representative in its dealings with the Uganda Government and with the various commercial interests in the Protectorate. In general, the appointment has been made so as to give as large a measure as possible of local autonomy to the conduct of affairs of the E.A.R. & H. in Uganda. Mr. Brown, who was educated at the Royal Masonic School, Bushey, and the Sorbonne, began his career with the former Southern Railway, England, as a Traffic Apprentice in 1931. After serving in various positions, he transferred to the Kenya & Uganda Railways & Harbours in May, 1938. In 1948 he was promoted to be Assistant Traffic Superintendent and, in 1952, District Traffic Superintendent. He served in that capacity in Nakuru and Dar-es-Salaam before transfer to Nairobi in 1955. Mr. Brown took up his new duties in Kampala on September 23.

Mr. C. T. Hutson, Chief Commercial Superintendent, and Mr. A. H. Earley, Chief Ports Manager, East African Railways & Harbours, are visiting the Belgian Congo. They will discuss movement of imports and exports through Dar-es-Salaam and Mombasa and over the East Coast rail routes. The mission will study the effects of the closing of the Suez Canal and transport developments on the West Coast. Investigations will be made into the demands for lake marine, rail, and coastal port facilities on the East Coast route and the appropriate level of charges for these services.

Mr. W. T. Beston, District Estate Surveyor (Western), Southern Region, British Railways, has been appointed District Estate Surveyor (London), Victoria, succeeding Mr. R. J. Haxby, who has been promoted.

Mr. J. W. Christopher, Assistant District Operating Superintendent, Kings Cross, Eastern Region, British Railways, who, as recorded in our September 27 issue, has been appointed District Operating Superintendent, Kings Cross, Eastern Region, entered railway service as a clerk at Grantham Goods in 1909. He became Stationmaster, Stainby, in 1920 and held that position for nearly eight years. In 1928 he was apponted Controller, District Superintendent's Office, Nottingham; four years later he became a District Inspector attached to the office of the District Superintendent, Cambridge, and, in 1936, transferred to Newcastle in a similar capacity. In 1939 Mr. Christopher was appointed Deputy Chief Controller, Superintendent's Office (Eastern Section), Liverpool Street. The following year, he transferred to the Western Section as Chief Signal Inspector. In June, 1942, he was appointed Assistant to District Superintendent, Nottingham. After spending a short time as Assistant District Superintendent, Lincoln, he returned to Nottingham as Assistant District Superintendent in July, 1945. He was appointed Assistant District Superintendent, Kings Cross, in September, 1948.

Mr. W. G. Randall has been appointed District Superintendent, South District, Country Bus & Coach Services, London Transport Executive. Mr. Randall joined the East Surrey Traction Company at Dunton Green in 1923 as a conductor and was promoted to be inspector at Leatherhead three years later. In 1931 he was appointed District Inspector at Swanley garage and, in 1947, Assistant District Superintendent at Windsor. Later that year he transferred to Reigate.

Mr. R. J. Hitchcock, Labour Relations Officer, London Transport Executive, has been appointed a Chief Officer of the Executive. Mr. Hitchcock, who is 50, joined the Underground Group in 1923 in the Staff Office. He was appointed to the Department of the Chief Staff Officer of the London Passenger Transport Board in 1933. He was transferred to the Chairman's office in 1943 and, in 1945, became Secretary to the late Lord Ashfield, Chairman of the Board. In 1946, he was appointed an Officer of the Board as Secretary to the Chairman. He returned to the Staff Department in 1947 as Establishment Officer. Mr. Hitchcock became Labour Relations Officer following re-organisation of the Staff Department in 1955.

Mr. F. H. Bye, who, as recorded in our September 27 issue, has been appointed Staff & Administrative Assistant, Chief Civil Engineer's Office, Paddington, Western Region, British Railways, joined the former Great Western Railway in the Chief Engineer's Office at Paddington in March, 1925. He was first attached to the Permanent Way Section, and subsequently served on the other sections of that office, including Accounts, Staff, and Works and also for periods in the London Divisional Engineer's Office. In 1930 he became Personal Secretary to Mr. A. S. Quartermaine (now Sir Allan Quartermaine). In 1933, he was promoted to the General Manager's Office, Paddington, and subsequently to the Establishment & Staff Office. After service covering all aspects of staff administration and negotiation on both the Salaried and Wages Staff Sections, Mr. Bye was appointed Head of the Staff General Section in January, 1946. Later that year he became Head of the Salaried & Supervisory Staff Section, and in this position was also Secretary to the Management Side of Section Council No. 1, Railway Workshop Supervisory Staff Line Committees "A" and "B," and Police Staff Southern Area Committee. In 1951, Mr. Bye was appointed Head of the Wages Staff Section (Rates of Pay & Conditions of Service), and, in association with this position, he also became Secretary to the Management Side of Sectional Councils Nos. 2, 3, 4, and 5.

Mr. T. G. Neil, Staff Assistant to the Motive Power Superintendent, London Midland Region, British Railways, retired on September 30 after more than 51 years of service.

Mr. Charles W. Barclay, Assistant Regional Establishment & Staff Officer, Scottish Region, British Railways, retired on September 30 after almost 45½ years of service.

Mr. R. F. Bonny, Works Maintenance Assistant, Chief Civil Engineer's Office, Kings Cross, Eastern Region, British Railways, has been appointed District Engineer, Norwich, succeeding Mr. O. F. C. Bender, who has retired.

Mr. H. W. T. Young has been appointed District Operating Superintendent, Crewe, London Midland Region, British Railways. Mr. Young was previously Assistant District Traffic Superintendent at Chester.

Mr. C. P. Hopkins, General Manager, Southern Region, British Railways, and Mr. R. G. Grout, Vice-Chairman, General Steam Navigation Co. Ltd., have been elected to the Council of the Institute of Transport. (Mr. David Blee and Mr. H. Leslie Bowes have been elected Vice-Presidents.)

Mr. Norman Harvey has been appointed Development Manager of Aston Chain & Hook Co. Ltd.

Mr. Dave Payne has been appointed Service Manager for Rotary Hoes Limited. He succeeds Mr. D. Middlemiss, recently appointed Deputy Commercial Manager.

Mr. L. J. W. Bailey, Chief Purchasing Agent for the Dunlop Rubber Co. Ltd., has been appointed General Manager of the India Tyre & Rubber Co. Ltd. and a Director as from October 1.

Mr. G. M. Harvey has been appointed Managing Director of British Oxygen Wimpey Limited with effect from September 1, 1957, on which date he relinquished his appointment on the company's board as Design Manager.

Mr. Tom Waller, Assistant District Manager since 1947 of the Tyre Depot of the Dunlop Rubber Co. Ltd., becomes District Manager on the death of Mr. R. E. A. Goode.

Sir Frederick Scopes has been appointed Chairman & General Managing Director of the Stanton Ironworks Co. Ltd. succeeding Mr. A. G. Stewart, who is retiring from the board. Mr. N. C. Macdiarmid succeeds Sir Frederick Scopes as Managing Director.

Metropolitan-Vickers Electrical Co. Ltd. announces the appointment of Dr. J. F. Shannon as Chief Engineer, Gear Engineering Department. Dr. W. H. Darlington relinquishes the title of Chief Engineer, Gas Turbine & Gear Engineering Departments, and is now Chief Engineer, Gas Turbine Engineering Department.

Mr. J. D. Lewis, a director of the Atlas Engineering Co. Ltd., is leaving this country by sea for the U.S.A. on October 17. Mr. Lewis, who will return in about a month's time, will visit New York, Chicago, Washington, and Indiana in connection with the Atlas standard wheel profile trueing machine.

Mr. E. R. L. Lewis has been appointed to the new position of Controller of Education for the English Electric group of companies. He will be responsible for the development of education and training at all levels throughout the group. Mr. Lewis already serves on a number of educational committees and is a governor of the Mid-Essex Technical College at Chelmsford. Sir Ronald Nesbitt-Hawes has been appointed Education Advisor to the group and Mr. W. R. Ahern becomes Chief Technical Personnel Officer.

Mr. J. H. Bromfield has been appointed a director of the English Steel Corporation. Mr. J. C. Mather has relinquished his seat on the board.

Mr. A. W. Morrison, Director of Expandite Limited, will leave this country on October 11 for a tour of the United States and Canada.

Mr. W. F. Robertson has been appointed a member of the Coastal Shipping Advisory Committee in place of Mr. R. Pelly, who has resigned.

Mr. J. Christie has been co-opted a director of A. Reyrolle & Co. Ltd. Mr. Christie, who joined the company in 1921 and has been actively engaged upon the design and development of switchgear in all its stages, became Chief Engineer in 1949.

Mr. J. Taylor has been appointed Sales Manager of the Hot Strip Rolling Mills of Steel, Peech & Tozer Limited. Mr. I. Mulhearn becomes Sales Manager of the Cold Strip Rolling Mills and Mr. P. Sherwell, Manager of the Central Sales Office.

The Institution of Locomotive Engineers

The following elections have been announced by the Institution of Locomotive Engineers:—

Members

Mr. H. M. Chatterjee, Joint Director, Railway Stores, Indian Railway Board.

Mr. S. H. Ghylls, Chief Engineer, Motor Car Division, Rolls-Royce Limited.

Mr. R. P. McBride, Chief Mechanical Engineer, Mersey Docks & Harbour Board.

Mr. R. M. Tufnell, Senior Traction Sales Engineer, Brush Traction Limited.

Associate Members

Mr. H. R. Allwood, Technical Assistant, Mechanical Inspection Section, British Railways.

Mr. P. A. Angus, Traction Development Engineer, English Electric Co. Ltd.

Mr. H. J. Arbuthnott, Assistant General Manager, North British Locomotive Co. Ltd.

Mr. A. H. Ard, Section Leader Draughtsman, Brush Traction Limited.

Mr. J. M. Begg, Assistant Plant Engineer, British Railways, Eastern Region.

Mr. F. J. W. Brown, Locomotive Shedmaster, Motive Power Department, British Railways, Eastern Region.

Mr. K. F. K. Browne, North British Locomotive Co. Ltd.

Mr. R. W. Butcher, Engineer Technical Officer, Ministry of Supply, Directorate of Royal Engineer Equipment, London.

Mr. R. Harding, Acting Motive Power Officer, Nigerian Railway Corporation, Ebute Metta.

Mr. F. H. Haslehurst, Senior Design Draughtsman, W. G. Bagnall Limited.

Mr. G. J. Heighton, Technical Assistant, Electrification Office, British Railways, Scottish Region.

Mr. K. S. Krishnan, Assistant Chief Design Engineer (Locomotive), Central Standards Office, Chittaranjan.

Mr. C. C. Lilleyman, Technical Adviser & Chief Draughtsman, Owen & Dyson Limited.

Mr. S. W. Marston, Senior Draughtsman, Chief Mechanical & Electrical Engineer's Department, British Railways, Eastern Region.

Mr. G. Oldham, Assistant Works Manager British Railways Locomotive Works, London Midland Region.

Mr. H. Poyser, Production Assistant, Carriage & Wagon Engineer's Department, Eastern & North Eastern Region, British Railways.

Mr. R. T. Ribbons, Locomotive Engineer, Steel Company of Wales Limited.

Mr. A. H. Ridley, Progress & Planning Officer, Rhodesia Railways.

Mr. J. A. Taylor, Technical Assistant, Motive Power Department, British Railways, North Eastern Region.

Associates

Mr. G. C. L. Alexander, Head of Transportation Service, B.A.O.R.

Mr. S. N. Loosen, Sales Director, Anti-Attrition Metal Co. Ltd.

Mr. J. R. Radford, D.A.D.Tn. (Rlys.), H.Q., B.A.O.R.

Mr. L. H. Titmuss, Chief Technical Officer, Spiral Tube & Component Co. Ltd.

Graduates

Mr. H. F. Bareham, Technical Assistant, Chief Mechanical & Electrical Engineer's Department, British Railways, Eastern Region.

Mr. D. V. Chapman, Draughtsman, Metropolitan-Vickers Electrical Co. Ltd.

Mr. D. J. A. Curtis, Engineer, Traction Project Department, Metropolitan-Vickers Electrical Co. Ltd.

Mr. P. E. Etherington, Technical Assistant, Chief Mechanical & Electrical Engineer's Department, British Railways, Eastern Region.

Mr. A. R. I. Ganapathi, Apprentice, Locomotive Drawing Office, Central Railway.

Mr. J. C. Henderson, Apprentice, British Railways Locomotive Works, North Eastern Region.

Mr. G. Hill, Draughtsman, British Railways, Eastern Region.

Mr. D. B. Nicholas, Draughtsman, Locomotive Drawing Office, British Railways, Eastern Region.

Mr. K. J. Nunn, Trainee Draughtsman, British Railways, Eastern Region.

Mr. L. S. Thorpe, Junior Engineer, Traction Control Department, Brush Electrical Engineering Co. Ltd.

Students

Mr. J. N. Haines, Engineering Apprentice, British Railways Locomotive Works, Eastern Region.

Mr. B. E. Keefe, Engineering Apprentice, British Railways Locomotive Works, Eastern Region.

Mr. A. P. Hamilton, Engineering Apprentice, British Railways Locomotive Works, Eastern Region.

Mr. G. L. Hunt, Engineering Apprentice, British Railways Locomotive Works, Eastern Region.

Mr. H. A. Smith, Engineering Apprentice, British Railways Locomotive Works, Eastern Region.

Mr. R. H. Tattersall, Engineering Apprentice, British Railways Locomotive Works, Eastern Region.

Transfer Associate to Full Member

Mr. A. Sykes, Senior Mechanical Engineer, Messrs. Rendel, Palmer & Tritton.

Transfer Graduates to Associate Members

Mr. A. G. W. Garraway, Manager & Engineer, Festiniog Railway.

Mr. W. F. D. Hart, Development Engineer, North British Locomotive Co. Ltd.

Mr. E. G. Liversedge, Mechanical Foreman, Motive Power Department, British Railways, North Eastern Region.

Mr. H. Mercer, Locomotive Shedmaster, Motive Power Department, British Railways, Eastern Region.

Mr. B. S. Pendse, Junior Railway Inspecting Officer, c/o Messrs. La Brugeoise et Nivelles, Bruges, Belgium.

Mr. P. F. Reeves, Assistant Inspecting Engineer, Crown Agents for Oversea Governments & Administrations.

Mr. M. M. Suri, Inspecting Officer, Indian Government Railways, Railway Board.

NEW EQUIPMENT AND PROCESSES

Fog Detector Unit

THE positive determination of the visibility under conditions of fog or mist, or of the warning of the occurrence of such weather conditions is possible with a recently developed fog detector unit. An additional feature of the equipment, its ability to operate fog signals automatically, is thought to be particularly suitable for application to railways.

The basic principle employed is that of measuring the amount of light reflected from water particles suspended in the atmosphere. The apparatus is stated to be equally effective in conditions of mist, haze, fog, heavy rain or snow and can operate equally effectively whether the occurrence is close to or at some distance from the detector.

Features of the fog detector unit include automatic operation, detection through any angle up to 360 deg. in azimuth, automatic check of overall operation between every sweep in azimuth, and automatic check of lamp intensity and sensitivity of electronic components. The unit is arranged for automatic gain control to compensate for any fall in light output due to ageing of the lamp, or dirt deposits on the optical surfaces, or fall off in electronic effectiveness. Permanent records of visibility conditions can also be made with the unit.

The fog detector unit with patents applied for in this country, is being manufactured and marketed by Stone-Chance Limited under an agreement with the National Research Development Corporation.

Compact Hydraulic Hand Pump

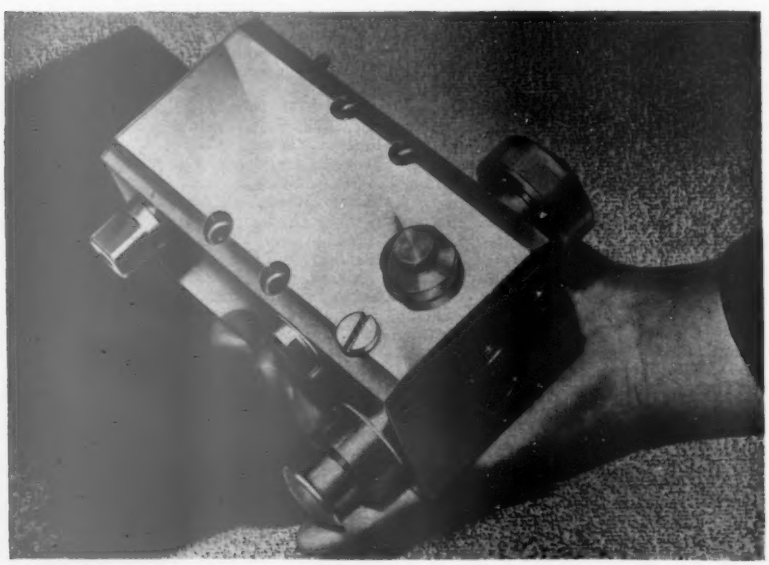
THE Tangye Hydrapak unit is a two-speed, single-acting pump which can be used with oil or water. It is of rectangular shape allowing it to be bolted to any convenient flat surface. The two speeds are provided by a high-pressure and low-pressure plunger and the compact design is achieved by arranging the high-pressure plunger to operate inside the larger low-pressure plunger.

Changeover from one pressure operation to the other, is effected by the closing or opening of a valve, by a pushbutton. A square-ended shaft protrudes from the pump and on to this the operating handle fits in any of seven positions. The low-pressure plunger operates at a maximum pressure of 750 lb. per sq. in., and delivers 3·1 cu. in. of liquid per stroke, equivalent to 1 pt. in eleven strokes.

The high pressure capacity of the pump depends upon the size of the high-pressure plunger and provision is made for the rapid removal of the complete plunger assembly so that an assembly with a high-pressure plunger of suitable size can be fitted. There is a choice of five high-pressure plungers available ranging from 1,600 to 10,000 lb. per sq. in.

A feature of the pump is that only a single passage is necessary for the liquid to traverse (in one direction under pressure and the reverse direction on exhaust) requiring only a single connecting pipe from pump to the place where pressure is required. The weight of the lightweight unit is 10 lb.

Further details can be obtained from the manufacturer, Tangyes Limited, Cornwall Works, Smethwick, Birmingham.



Load Resisting Lubricant

A DIFFERENT concept on the lubrication of enclosed gears, by fixed and dispersive lubrication, known as the Voler Reductol Plan, has recently been announced. This is of application to machine drive and diesel locomotive and railcar boxes. By adopting this system, it is claimed, gearbox temperatures are considerably reduced, high viscosity of the lubricant is maintained, both the life of the gears and the lubricant is extended beyond normal expectations, and the oil-film strength is increased.

The scheme uses two types of media for separating the gear teeth, a colloidal graphite, Voler Drylube A, in suspension in a viscous fluid, Voler Reductol lubricating oil.

In practice the Reductol Plan is to use Reductol as the fluid lubricant, and, before new gears are put into service, to coat the teeth with the graphite compound Drylube A, to nullify the damaging effects of oil film rupture which takes place when new gears are bedding down during the first 100 hr. or more of running. Another advantage obtained is stated to be that powdered metal which accumulates during running-in, is rendered less harmful because it is coated and mixed with displaced graphite and does not, therefore, float in the lubricating oil as a fine abrasive. Either of the lubricants can be used alone to gain a part advantage over a normal oil, but only when used together, as outlined are all the benefits obtained.

Further details of the scheme can be obtained from the manufacturer of the lubricant, Revol Limited, Exchange Building, Quayside, Newcastle-upon-Tyne.

Dry Cylinder Air Compressor

THE type C660 dry cylinder compressor has been developed for applications where a moderate supply of oil-free air is required. The machine is a twin-cylinder single-stage single-acting machine delivering 100 cu. ft. free air per minute at 100 lb. per sq. in. when running at its normal speed of 600 r.p.m..

The pistons are fitted with special graphite carbon rings making cylinder lubrication unnecessary. They are chemically inert to most substances in the temperature and pressure conditions of use. The pistons must not be in contact with the bore of the cylinder, and are therefore made slightly smaller than the cylinder diameter, the top carbon ring acting as a guide. This being of small diameter is solid, but the two pressure sealing rings are segmented, and held in contact with the cylinder wall by internal springs. The cylinders are fitted with centrifugally-cast rustless nickel iron liners.

The machine is of the crosshead type,

the crosshead guides being integral with the base of the cylinder casting. Lubrication of bearings and crosshead guides is by force feed from a valveless plunger pump of a standard type. Suction and delivery valves are of the automatic multi-port low-lift plate type, impact being reduced by the fitting of buffer plates.

The manufacturer's normal air governor

is fitted which holds the suction valves off their seats when a predetermined pressure is reached in the air receiver. Fully automatic control by pressure switch can also be arranged. When arranged for veerope drive, a motor of 25 h.p. is recommended for a pressure of 100 lb. per sq. in.

Leading particulars of the C660 are; bore, 6 in.; stroke, 6½ in.; net weight, 1,091 lb.

Full details may be obtained from the manufacturer, Broom & Wade Limited, High Wycombe, Bucks.

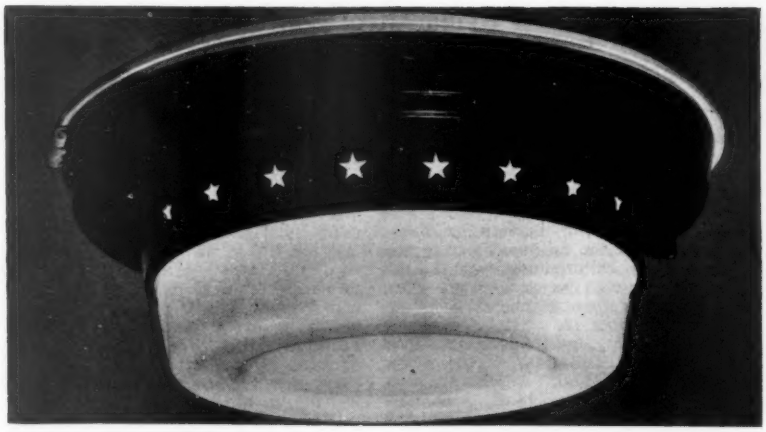
Railway Coach Lighting Fitting

A FITTING, the D.110/R, has been specially designed in conjunction with the Carriage & Wagon Engineer of the Southern Region and has been fitted to the recently built British Railways prototype dining and buffet cars.

The fitting is a semi-recessed ceiling unit housing one 60-W. G.L.S. lamp. A feature of the design is the shallow recessing depth obtained whilst keeping the lamp in the vertical burning position. The decorative lower section of the fitting consists of a moulded plastic diffuser held in position by a spun aluminium gallery. The diffuser and gallery are hinged to provide easy access for maintenance.

The reflector is made of mild steel, stove enamelled white. A Taw Transport type lampholder is mounted in a ventilated cylinder projecting above the reflector. The lower ring is manufactured in aluminium and is pierced with a star motif for decoration purposes. This ring carries, in addition to a hinge, a latch which is operated by a standard universal carriage key.

The dish is of opal Perspex or glass and is intended to give an evenly diffused light. To prevent the ingress of steam or dust, the lower part of the fitting closes against a white Neoprene washer. The weight of the fitting is some 1½ lb.



The D.110/R is manufactured by Courtney, Pope (Electrical) Limited, Amhurst Park Works, Tottenham, London, N.15.

Roller Shearing Machine

THE Schulze & Naumann roller shearing machine, recently developed, has applications for boiler making, locomotive and carriage construction and so on.

Shearing equipment has been so much improved over the last few years, it is stated, that the metal plates cut have an excellent surface finish and the accuracy of the cut is in accordance with the very high standards demanded by automatic welding.

The accuracy of the machine is such that if two plates are butted together after a cut, the maximum gap over a length of 25 ft. is 0·004 in. and over 40 ft. the gap is no more than 0·008 in. Although the shearing cuts are of light quality, the machine is provided with an additional high duty planing attachment of ample dimensions for machining special edges.

Features of the machine include; shearing capacity, ⅞ in. by 40 ft.; planing capacity, 2 in. by 40 ft. (profile irons up to a depth of 1 in. can also be planed); power of driving motor, 150 h.p.; weight, 70 tons. The machine is equipped with various items of special equipment by the aid of which it is possible to load and unload the plates rapidly to increase efficiency of the machine and reduce handling times to a minimum.

The distributor in this country is Burton, Griffiths & Co. Ltd., Mackadown Lane, Kitts Green, Birmingham, 33, to whom application for further information should be made.

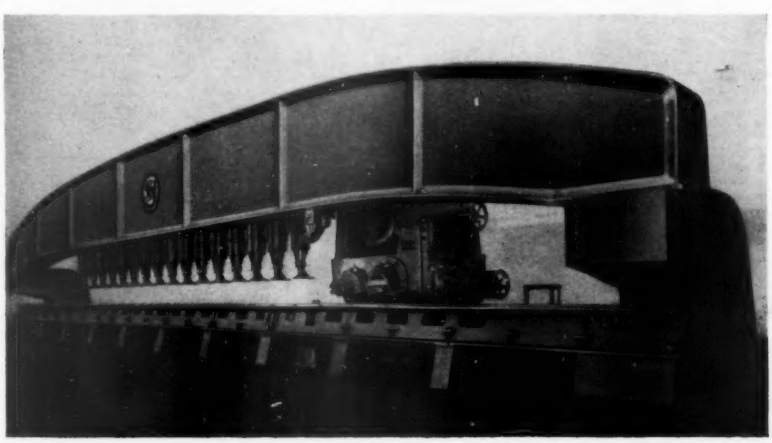
Improved Insulating Fishplates

FISHPLATES, known as Permali XLM, have been developed to give improved length of life to fishplates made of laminated densified wood used for rail joint insulation of track circuits. This is stated to be the first major development that has occurred on vacuum impregnated materials since 1937.

A three-year development programme was undertaken by the manufacturer in co-operation with the Joint Civil Engineer, Southern Region. A number of test sites were prepared, containing different forms of fishplates varying in thickness, quality of material and methods of production and chosen to subject the fishplates to various traffic conditions. This led to the conclusions that some reduction in the thickness of a standard insulating joint was permissible and that the XLM fishplate can resist more effectively the complicated mechanical forces exerted by the rail ends.

The XLM fishplates are stated to have shown up very favourably by comparison with standard Permali "control joints" and a considerable number are being installed by British Railways on trial.

Further details may be obtained from the manufacturer, Permali Limited, Bristol Road, Gloucester.



Remodelled Winter Train Services, Eastern and North Eastern Regions

Complete re-casting of services between Kings Cross and West Riding and on East Coast main line

The principles underlying the complete rearrangement of the East Coast main line services of the Eastern and North Eastern Regions, with the introduction of the winter timetable on September 16, are the subject of editorial comment in this and the August 23 issues, and the effect on the Scottish Region timetables in our issue of September 13.

In the morning, northbound, the 7.45 a.m. "Morning Talisman" becomes the 7.50 a.m. "Fair Maid," calling additionally at Darlington at 11.42/11.44 a.m. (232·3 miles from Kings Cross in 232 min.), then at Newcastle 12.27/12.33 p.m., and continuing over the 124·5 miles to Edinburgh in 123 min., to arrive at 2.36 p.m., before proceeding to Perth. The previous 7.50 a.m. (now 8 a.m.) exchanges its Newcastle portion for one to Hull; the Leeds and Bradford portion is a restaurant car train, while the Newcastle section becomes a new fast down restaurant car service at 9 a.m. from Kings Cross, allowed 105 min. for the 105·5 miles to Grantham, and, after Doncaster and York stops, 41 min. for the 44·1 miles from York to Darlington; Newcastle is reached at 1.57 p.m. Between these two is the semi-fast 8.20 a.m. from Kings Cross to Doncaster. To conform with the systematic times, the 9.10 a.m. "White Rose" to Leeds and Bradford starts at 9.20 a.m.

"Flying Scotsman"

This winter the "Flying Scotsman," reduced in weight, continues its summer non-stop working to Newcastle (2.44/2.50 p.m.), and with a very fast 128-min. run over the 124·5 miles to Edinburgh is due there at 4.58 p.m., 37 min. earlier than last winter. It had been hoped to start the 10.10 a.m. down Glasgow train at 11 a.m., to preserve the hourly sequence of departures, but Scottish connections made it desirable to retain the old time; it is 17 min. faster to Edinburgh and 41 min. to Glasgow than in the summer. The 10.20 a.m. down Leeds and Bradford omits its Newark stop and gains 31 min. in running to Leeds, reached at 2.28 p.m. (2.43 p.m. on Saturdays). For a more even distribution of departures, the 12 noon "Queen of Scots" starts 10 min. earlier, at 11.50 a.m.; the 12.20 p.m. "Northumbrian" 10 min. later, at 12.30 p.m.; and the 2 p.m. "Heart of Midlothian" 60 min. earlier, at 1 p.m.; and the previous working of the latter is continued by a new 2 p.m. to Newcastle, calling intermediately at Peterborough, Grantham, York and Darlington, and due Newcastle at 7.16 p.m.

The 1.20 p.m. down Leeds and Bradford omits all stops between Peterborough and Doncaster, and its Leeds arrival, at 5.13 p.m., is 40 min. earlier than that of the 1.18 last winter. At 2.20 p.m. there is another of the new semi-fast trains, to Peterborough and principal stations beyond to Doncaster, followed by the 3 p.m.—previously 3.10 p.m.—to Newcastle, now non-stop to York (188·2 miles in 204 min.), and reaching Newcastle at 7.56 p.m., an acceleration of 18 min. The 3.40 p.m. "West Riding" to Leeds and Bradford is speeded up by 13 min. to Leeds (7.32 p.m.); the 4 p.m. "Talisman" is practically unchanged in running, as also are the 4.50 p.m. "Tees-Tyne Pullman" and the 5.35 p.m. to Newcastle. But the 3.52 p.m. down Leeds and Bradford starts at 4.5 p.m. and gains 19 min. to Leeds; the 5.30 p.m. "Yorkshire Pullman" starts at 5.20 p.m., to preserve the hourly sequence; and the 6.15 p.m. to Leeds and Bradford, now 6.20 p.m. and non-stop from Peterborough to Doncaster, is speeded up by 24 min. to Leeds, arriving at 10.19 p.m.

Night Expresses

The general pattern of the night trains is briefly as follows: 7.45 p.m. from Kings Cross to Aberdeen, with sleeping cars (and restaurant car to York); 8.20 p.m. semi-fast to Edinburgh; 10.15 p.m. all-sleeping car train to Aberdeen (the "Aberdonian"), non-stop to Newcastle and carrying passengers only for Inverkeithing and beyond; 10.30 p.m. to Aberdeen, with sleeping cars; 10.45 p.m. semi-fast to Leeds and Bradford; 11.20 p.m. to Edinburgh, with sleeping cars, non-stop to Newcastle; 11.35 p.m. to Edinburgh, with first class sleeping cars only and non-stop to Newcastle (an operating halt only); 11.55 p.m. to Newcastle; 1 a.m. to Newcastle non-stop, carrying sleeping cars only (the "Tynesider"); and 1.15 a.m. semi-fast to York.

In the up direction the "Morning Talisman," now the "Fair Maid," and the "Tees-Tyne Pullman" are much better separated by the former being 60 min. later from Edinburgh, at 8.30 instead of 7.30 a.m., so that the Newcastle start is at 10.43 a.m., 78 min. after the "Tees-Tyne"; the "Fair Maid" now calls also at Darlington, and leaving there at 11.26 a.m. is non-stop to Kings Cross, arriving at 3.20 p.m. Between the two the previous 10.5 a.m. "Northumbrian," now at 9.55 a.m. from Newcastle, is accelerated 23 min. to be in Kings Cross by 3.8 p.m. The new "Northumbrian" is at 12.30 p.m. from Newcastle, following the non-stop "Flying Scotsman" (which leaves at 12.18 p.m. and is into Kings Cross at 5.3 p.m.), with stops at Darlington, York and Peterborough and a Kings Cross arrival at 5.45 p.m.

The southbound Glasgow—Kings Cross train, leaving Glasgow 1 hr. later, at 9.30 a.m., and Edinburgh 50 min. later, at 11 a.m., is away from Newcastle at 1.28 p.m., and with the same stops as before (less Grantham) is into Kings Cross at 6.39 p.m., 2 min. earlier than during the summer, an overall acceleration of 62 min. Finally, there is the group of up evening expresses from Newcastle, previously at 4.32 (the "Heart of Midlothian"), 5.3 and 6.15 (the "Talisman") p.m., which arrived in London at 9.55, 10.13 and 10.45 p.m. The 30 min. earlier departure of the first of these three from Edinburgh, at 1.30 instead of 2 p.m., makes it 3.53 p.m. from Newcastle, and with 20 min. acceleration in running it reaches Kings Cross at 9.5 p.m. The 5.3 (now 5.5) p.m. calls additionally at York, with the first timing on record of 40 min. over the 44·1 miles from Darlington (66·2 m.p.h.). has a diesel connection from Leeds and Bradford at Doncaster and arrives at 10.10 p.m., followed by the "Talisman," practically unaltered, at 10.43 p.m.

There are considerable changes in the up Leeds and Bradford service. The previous 7.28 and 7.50 a.m. from Leeds to London change places, the former, at 7.30 a.m., becoming the "West Riding"; omitting the Retford and Grantham stops this is due in Kings Cross at 11.7 a.m., an acceleration of 33 min.; the later train is practically unaltered. The 9.53 a.m. from Leeds becomes the 10 a.m., and after Wakefield calls only at Retford and Newark, arriving at 1.48 p.m. and thus 10 min. faster. The 12.30 p.m. from Leeds (last winter's 12.35), is non-stop from Doncaster to Peterborough, and by arriving in London at 4.25 p.m. gains 28 min. in running.

The all-sleeping-car express, the "Aberdonian," at 8.35 p.m. from Aberdeen, with stops at Edinburgh and Newcastle for working purposes only, and thence non-stop, arriving at 7.40 a.m. As with the down sleeping car trains, the entire service is greatly accelerated.

By amplification of the diesel service from Grantham, Lincoln has gained four new fast services from London in connection with the 9 a.m., 2.10, 5.35 and 8.20 p.m. trains from Kings Cross, in 3 hr. 24 min., 2 hr. 59 min., 2 hr. 59 min., and 2 hr. 51 min. respectively.

Many branch connections are improved equally by the revolutionary changes in the main line service, which will benefit a large area of England and Scotland.

G.N.R.(I.) Winter Timetables

Considerable changes have been made in the Winter timetables of the Great Northern Railway Board from October 1. Both passenger and train services have been withdrawn from two sections. Omagh—Clones; Bundoran Junction—Bundoran, and Portadown—Glaslough. Alternative bus services in these areas are provided by the Ulster Transport Authority; connecting with trains arriving at and departing from Omagh, Portadown, Monaghan and Clones.

Changes in the Belfast—Dublin services include an early morning diesel train leaving Belfast at 6.30 a.m., due Dublin at 9.56 a.m. The 10.30 a.m. "Enterprise" express, Belfast to Dublin, and 5.30 p.m. Dublin to Belfast both cover the journey in 2 hr. 10 min., arriving 5 min. earlier than previously. The former 6.55 p.m. from Dublin now leaves at 6.25 p.m., arriving Belfast at 9.40 p.m.

Connections between Dublin and Londonderry in each direction have been improved in the overall timings, and there are two additional connections, by the 7.30 a.m. ex Dublin, due Londonderry at 11.50 a.m., and by the 7.15 a.m. ex Londonderry, due Dublin 12.40 p.m. Passengers for Dublin by the 7.15 a.m. ex Londonderry are permitted to travel through to Belfast to connect with the "Enterprise."

Perhaps the most radical alterations are in the reduced running times between Belfast and Londonderry. By the substitution of diesel trains on all these services considerable time is saved on the journey, in some cases as much as 65 min.

East Indian Railway Annual Dinner

Progress and efficiency on the E.I.R. today: the foundations laid by British officers

The 54th annual dinner of the East Indian Railway Officers' Association was held in the Connaught Rooms, London, W.C. 2, on September 25. The chair was taken by Mr. H. J. Allinson, former Chief Electrical Engineer of the East Indian Railway. The principal guest was Sir Douglas Gordon, late of the Indian Police.

Mr. Allinson, after the Loyal Toast, proposed that of the Eastern Railway of India. [The Eastern Railway is composed roughly of the former E.I.R. east of Moghalsarai and the Sealdah Division of the former Eastern Bengal Railway.]

The benefits of the British connection with India, Mr. Allinson stated, were evident in the results. Among these were the efficiency of the Indian railways, which had inherited a great tradition of knowledge, skill, executive ability, and devotion from the British officers who had served on them.

Operating Efficiency

As an example of what had been and was being achieved he gave some operating results of the Eastern Railway. In 1956-57 that system had loaded an average of 2,600 wagons of coal daily, 7 per cent more than the average of the previous year. Freight loading at 1,800 wagons a day was about 2 per cent more than previously. The operating ratio at 75·6 per cent compared with 77·9 per cent for the preceding 12 months.

Mr. Allinson went on to give details of the 3,000-V. d.c. electrification in the Calcutta area (the Howrah-Burdwan main line and the Tarakeshwar branch), already mentioned from time to time in this journal. Electrification plans, he went on, were making good progress.

The punctuality and comfort of long-distance passenger trains in India had improved in recent years. Mr. Allinson quoted a letter in praise from a recent British traveller.

Mr. J. A. Bell; a former General Manager of the E.I.R. and chairman of the Dinner Committee of the E.I.R. Officers' Association, proposed the health of the guests.

Sir Donald Gordon, replying for the guests, referred to the foundation of prosperity for India so well laid by the British officers on the railways.

Mr. Bell thanked Mr. R. C. Harvey for his efficiency and the hard work he had put in in organising the dinner. He hoped that all present from the former E.I.R. would do their best to be present at next year's dinner, and persuade other former E.I.R. officers to do the same. He referred also to the efforts being made to place a replica of the insignia of the East Indian Railway Regiment, Auxiliary Force of India, in the Indian Army room of the museum at the Royal Military Academy, Sandhurst, and hoped that E.I.R. Association members would support them.

The following had accepted invitations or signified their intention to be present:

Messrs. J. M. Agabeg, H. J. Allinson, K. O. Bathgate, J. A. Bell, E. P. Blake, G. W. Browne, C. N. Burns, R. J. Earle, J. M. Fenton, E. Fleeton, J. C. Gibson, A. R. Gundry,

Sir Hugh Hannay, Messrs. R. C. Harvey, J. R. Hemsley, E. H. B. Heysham, D. H. Hughes, J. C. Lamb,

Mr. L. T. Madnani, Sir Robert Marriott, Messrs. D. McCormack, G. T. Montgomery, R. S. Oakley, J. F. Pegg, H. W. Puttick, G. W. N. Rose, R. Saunders-Jacobs, B. G. Smith, M. Srinivasan, H. V. M. Stewart,

Messrs. J. S. Tritton, O. R. Tucker, A. V. Venables, R. M. Watson, G. Waugh,

Guests: Messrs. G. P. Bhalla, N. Calder, P. H. S. Drew, A. Gemmell, Sir Douglas Gordon, Messrs. J. H. Gundry, H. M. Matthews, H. F. Merrington, R. R. Parker, P. G. C. Peyton, D. A. Phillips, A. Sykes.

Railcar with Increased Engine Power

A two-car diesel set which entered service a week or two ago, with the Eastern Region, incorporates two of the newly-developed British United Traction 230-b.h.p. 6-cyl. horizontal diesel engines. Each of these drives through a 20-in. fluid coupling and a free wheel shaft to a Wilson four-speed S.E. type epicyclic gearbox, the output of which is transmitted through a cardan shaft to a Self-Changing Gears RF.28 type axle-mounted final drive and reversing gearbox.

The controls fitted to this car are similar to those installed in the earlier twin 150-b.h.p. units, of which over 450 are in traffic; arrangements can be made whereby new cars of the more powerful type may operate in multiple with existing units. Provision has also been made for the fitting of fully-automatic control to this new car, thereby relieving the driver of the responsibility for effecting appropriate gear changes.

Power-Weight Ratios

In the designing of lightweight diesel train units B.U.T. states it has always been mindful of the fact that for certain applications higher power-to-weight ratios per car would ultimately be necessary. Apart from the fact that lightweight diesel trains may be required to operate over routes having difficult gradients, there are certain heavily-populated suburban routes where high passenger loadings are experienced, and where faster acceleration characteristics are necessary in order to achieve improved schedules. With this in mind, the 230-b.h.p. power unit was developed as a rail traction engine combining maximum power with a minimum of space and weight.

As stated above, the new installation, which broadly follows existing practice on the twin 150-b.h.p. cars, can be arranged so that direct coupling of 300-h.p. units and 460-h.p. units can be effected in a train formation. Any combination of cars, including up to six power cars of similar or mixed types can therefore be marshalled according to traffic requirements. Also, in the interests of flexibility, both in the matter of operation and maintenance, the electro-pneumatic control equipment is similar to that fitted to existing 300-h.p. units.

The engine which is of direct injection, four-stroke, overhead valve type has the following leading particulars; bore, 5½ in.; stroke, 6½ in.; cubic capacity, 926·6 cu. in.; maximum output, 230 b.h.p. at 1,900 r.p.m.; compression ratio, 14:1; full load speed range, 600-1,900 r.p.m.; max. idling speed, 400 r.p.m.

SWITCHGEAR & COWANS LIMITED.—The interim dividend of Switchgear & Cowans Limited is 7½ per cent on capital increased from £175,000 to £225,000 by a "rights" issue. For 1956 an interim of 10 per cent was paid on the smaller capital. This was followed by a final of 15 per cent on the present amount. Trading profits for the first half-year were lower as a result of the shipbuilding and engineering strike in March last and higher costs.

One of the 230-b.h.p. B.U.T. diesel engines which power the two-car set

Conference on Lubrication and Wear

An international conference on "Lubrication and Wear," organised by the Institution of Mechanical Engineers, was held in London on October 1-3. During the conference some 100 papers were presented for discussion, covering such subjects as hydrodynamic lubrication; boundary friction and lubrication; bearing metals; glands and seals; roller bearing, i.c. engine, and gear lubrication; wear and utilisation; and special applications.

The conference was opened by the President of the Institution, Sir George Nelson, on October 1, supported by the chairman of the organising committee, Dr. D. Clayton, who outlined the arrangements. The formal opening was preceded by a reception at the Hyde Park Hotel on September 30. This was at the invitation of the managing directors of the British Petroleum Co. Ltd., and the Shell Petroleum Co. Ltd.

Many Papers

Because of the large number of papers presented, it was decided to adopt the system of presentation by "reporters," whose main purpose was to introduce briefly the papers for discussion, and also fill in background material not covered by the papers so that a balanced statement of the present position was recorded.

In connection with the conference, visits were arranged to various apposite works and research centres, including British Petroleum Co. Ltd., Sunbury-on-Thames; Esso Research Limited, Abingdon; the London Transport Aldenham Bus Repair Depot; C. C. Wakefield & Co. Ltd., Hayes; Shell Thornton Research Centre and Stanlow Refinery; and the Mechanical Engineering Research Laboratories, East Kilbride.

A number of the papers presented had a general bearing on various aspects of railway engineering; of direct interest was a paper on the methods of reducing wear of rails and tyres by lubrication, given by Dr. Fritz Birmann, Senior Councillor, German Federal Railways.

Southern Region Train Alterations

Certain alterations to trains using Cannon Street Station are announced by the Southern Region, to continue in effect until the new signalling at this station is brought into use. Among express trains to the Kent Coast, the 4.44 p.m. on weekdays and the 12.45 and 1.15 p.m. on Saturdays from Cannon Street to Ramsgate are starting instead from London Bridge at 4.46, 12.46, and 1.16 p.m. respectively. The 5.14 p.m. to Ramsgate starts instead from Victoria at 5.15 p.m., and 5.44 p.m. is cancelled as between Cannon Street and Chatham, and replaced by a special non-stop electric train at 5.44 p.m., due at Chatham at 6.31 p.m., where a change is made into a steam train at 6.37 p.m. for Ramsgate, running 6 min. later than the steam 5.44 p.m. from Cannon Street and without buffet car.

In the up direction the 6.29 a.m. from Ramsgate is diverted to Charing Cross, arriving 9 a.m., and similarly the 7.19 a.m., which starts 2 min. earlier and arrives at 9.25 a.m. The 6.6 a.m. from Ramsgate, starting 5 min. earlier, is diverted to Victoria, arriving at 8.33 a.m., but has a special stop at Swanley and an electric connection from there which reaches Cannon Street at 8.23 a.m. The 7.33 a.m. up, starting at 7.32 and without buffet car, terminates at Chatham and has a non-stop electric connection from there to Cannon Street, arriving at the normal time of 9.36 a.m.

Folkestone and Dover Trains

On the Folkestone and Dover trains the 7 a.m. and 11.45 a.m. are diverted from Cannon Street and Charing Cross respectively to Victoria, arriving at 9.52 a.m. and 2.49 p.m.; the former starts 4 min. earlier, stops additionally at Sevenoaks, and has an electric connection from there to Cannon Street, due at the normal 9.30 a.m. The 8.8 a.m. from Hastings to Cannon Street is diverted to Charing Cross, with an arrival at 9.55 a.m. The 5.48 a.m. from Cannon Street to Dover Priory starts from Holborn Viaduct at 5.40 a.m., and after calling at Blackfriars resumes its normal times from London Bridge (5.57 a.m.) onwards. There are many other minor alterations to stopping and short-distance trains normally routed from and to Cannon Street, and to the connections with these and the express services mentioned.

Eastern Coach Works New Workshops

More efficient and more economical production, with improved staff amenities and easier adminstration, will be afforded by an extension recently completed at the Eastern Coach Works, Eastern Way, Lowestoft, which manufacture and overhaul coach and bus bodies for undertakings of the Tilling Omnibus Group, and also to some extent for the Scottish Omnibuses Group, British Transport Commission.

Eastern Coach Works Limited employs some 1,100 people, and for the past 10 years about 100 employed in the seat-making and seat-trimming sections, and on associated stores work, have been located in rented premises in South Lowestoft, a mile from the main works. The use of this out-factory, with its duplicate adminstrative and canteen facilities, has also involved extra costs in transport of materials, all of which will be avoided by the enlargement and partial reorganisation of the main works.

Large Extension

The new premises, built under the architectural direction of Mr. A. A. Briggs, Architect to the Tilling Association Limited, consists principally of a large extension with total area of 33,000 sq. ft., adjacent to the existing finished part store and bodyshop at one corner of the main factory building. This extension is occupied partly by the new finished parts store and the sheet metal store, and mainly by the whole of the sheet metal and panel beating department. This has enabled that part of the main works which was devoted to the storage of finished parts and to sheet metal works and panel beating to be released for fitting shop purposes.

Concrete Truss Units

Construction of the new building, which is arranged in 50-ft. bays, is in pre-fabricated concrete truss units with a complete absence of internal chambers and roofties. The exterior is of asbestos-cement sheets, lined with insulation board, and there is extensive use of glasswork to provide good lighting.

Heating is by overhead unit heaters and wall radiators, and opportunity was taken of having to provide heating for the extension to modernise the works boiler house.

Construction of the new extension began in January this year and has been carried through virtually without interruption of production. As a subsidiary to the main extension, a steel-framed Dutch Barn type of building which formed part of the timber shed on the west side of the works, near the new stores, has been modernised as a two-storey, concrete-floored unprocessed materials store, providing about 8,000 sq. ft. of additional floor space. Opportunity has also been taken to complete a perimeter road to the works. The main contractors for the extension were Palfrey & Webb, Lowestoft.

First British Railways All-Diesel Depot

Work has begun on the installation of oil fuelling facilities at Bow (Devons Road) Locomotive Depot. This marks the first step to convert the depot to service diesel locomotives. As stated in our issue of June 7, it will be the first depot on British Railways to go over entirely from steam to diesel traction; the 41 steam locomotives at present allocated will be replaced by 33 diesel units.

The operation of this depot will provide valuable experience which will assist in planning the future conversion of other depots due for alteration to full diesel servicing. In addition, the change-over at Bow from steam to diesel locomotives will help to minimise the local smoke nuisance and conform with Government schemes for the establishment of smokeless zones.

Maintenance and Servicing

The main alterations to the depot cover all general requirements for the maintenance and servicing of diesel locomotives, including the provision of oil fuel storage tanks and fuelling equipment and subsidiary alterations to the permanent way, drainage, and paving. Lubricating oil storage tanks and battery charging equipment will be installed and inspection pits are to be deepened and fitted with lights. A workshop and store will be provided and modern heating and lighting throughout the building. In the planning stage the conversion of the depot was the subject of consultation between management and staff. The project is expected to cost some £68,000.

Motive Power

The Devons Road motive power depot maintains locomotives for freight train working between East London Docks and Willesden and Acton over the former North London Railway lines and London dock lines. The services worked are largely involved in the movement of inter-Regional traffic. The diesel locomotives with which the depot will eventually be equipped will be 15 1,000-h.p. Vulcan-English Electric Bo-Bo Type "A," mixed traffic units described in our issue of June 7, 10 mixed-traffic, of 800 h.p., six shunting locomotives of 300 h.p., and two shunting locomotives of 350 h.p. All the mixed-traffic locomotives will be fitted with automatic train control to conform with the system in operation on the adjacent London, Tilbury & Southend line. At present four mixed-traffic diesels and two diesel shunters have been delivered to the depot and others will follow at the rate of about two a month until the full complement is reached.

Contracts and Tenders

£1,500,000 *Rhodesia order for Metropolitan Cammell Carriage & Wagon Co. Ltd.*

Metropolitan Cammell Carriage & Wagon Co. Ltd. has received an order from Rhodesia Railways for 500 bogie high-sided wagons. The value of this order, together with that for 200 bogie covered goods wagons reported last week, is worth some £1,500,000.

The Sudan Gezira Board has placed an order with the Hunslet Engine Co. Ltd., Leeds for 16 88-h.p. diesel-mechanical locomotives. This is the fifth order by the Board for Hunslet locomotives specially designed for its cotton plantation railway system, located in the Barakat, Meringan, and Hassa Heissa area, south of Khartoum.

Canadian Pacific Railway has placed a $24,000,000 order for 117 diesel locomotives with Montreal Locomotive Works Limited, and General Motors Diesel Limited. Montreal Locomotive Works will build 52 1,800-h.p. main-line shunters and 11 660-h.p. yard shunters, while General Motors at London, Ont., will manufacture 31 1,200-h.p. and 23 1,750-h.p. main-line shunters.

The British Transport Commission has placed the following contracts in connection with the British Railways modernisation plan:—

Projectile & Engineering Co. Ltd., Battersea: 75,000 triangular cross-bars, for the conversion to continuous braking of 16-ton standard mineral wagons

Rootes Group, Coventry: 224,000 cheesehead turned brake pins.

British Railways, North Eastern Region, have placed the following contracts:—

Steels Engineering Products Limited, Newcastle: three "Atlantis" coles cranes, West Hartlepool

British Insulated Callender's Cables Limited, Belvedere, Kent: cabling of River Ouse, Selby Swing Bridge

Tarslag Limited, Stockton-on-Tees: erection of fitters' shop and stores, Thornaby Motive Power Depot, and supply of pre-stressed concrete beams

E. Davis (Fixers) Limited, York: strengthening of deck, Bridge No. 15, Howdon Viaduct.

The Special Register Information Service, Export Services Branch, Board of Trade, reports calls for tenders as follows:—

From India

(*a*) 40 wagons for ore handling

(*b*) 60 wagons for coal handling.

The Issuing Authority and address to which bids should be sent to is the Chief Engineer, Madras Port Trust, Madras. The closing date is (*a*) October 11, 1957, (*b*) October 18, 1957. The Board of Trade reference is ESB/23398/57.

A large quantity of cabin wire adjusters, links, pullies, shackles, sleeves, and thimbles.

The Issuing Authority is the Director General of Supplies and Disposals. The tender No. is WP2/4286/19/D/Cabin Wire Adjuster. Bids should be sent to the Director General of Supplies and Disposals, Shahjahan Road, New Delhi. The closing date is October 18, 1957. The Board of Trade Reference is ESB/23016/57.

98,508 couplings to various specifications.

The Issuing Authority is the Director General of Supplies and Disposals. The tender No. is WP2/4286/16B/RC/JOINTS. Bids should be sent to the Director General of Supplies and Disposals, Shahjahan Road, New Delhi. The Board of Trade reference is ESB/23014/57.

82,807 point rod coupling ends to I.R.S. drg. No. S.3633 alt. 9 and to I.R.S. specn. No. S-5/56 and S-10-56

1,291,977 ft. point rodding 1¼ in. dia. solid to I.R.S. drg. No. S. 3635 alt. 2 and to I.R.S. specn. No. S-5/56 and S-10-56

683 rods, flange connecting (butt end) to I.R.S. drg. No. S. 3600 alt. 5 and to I.R.S. specn. No. S-10-56.

The issuing authority is the Director General of Supplies and Disposals. The tender No. is WP/4286/12/B/RC Point Rodding. Bids should be sent to the Director General of Supplies and Disposals, Shahjahan Road, New Delhi. The closing date is October 10, 1957. The Board of Trade reference is ESB/23011/57 and should be quoted in any correspondence with the Branch.

From Pakistan

(*a*) 9,303 springs comprising: central coupler, bogie bolster bearing, auxiliary rubber bearing, and volute, to various drawings and specifications

(*b*) 50,000 bearing plates complete, 60 lb. FBBSR tracks M.G. to specn. No. PRS.T5-49.

The issuing authority is the Department of Supply and Development, Government of Pakistan. The tender Nos. are (*a*) C.T.-2/49616/2/57, and (*b*) C.T.-2/49925/2/57. Bids should be sent to the Director General of Supply and Development, Frere Road, Karachi. The closing dates are (*a*) October 15, 1957, and (*b*) October 14, 1957. The Board of Trade reference is (*a*) ESB/23485/57, and (*b*) ESB/23486/57.

Provision of automatic block signalling on the double line section between Karachi Cantonment and Landhi Stations on the North Western Railway.

The issuing authority is the Ministry of Communications, Railway Division. The tender No. is WI-57/TR/4. Bids should be sent to the Director General, Railways, Ministry of Communications (Railway Division), Government of Pakistan, Karachi. The closing date is January 6, 1958. The Board of Trade reference is ESB/23029/57 and should be quoted in any correspondence with the Branch.

From Australia

1 diesel shunting locomotive, complete

Alternatively

2 diesel shunting locomotives, complete

2 sets of equipment for diesel shunting locomotives, consisting of engine, transmission and controls

The issuing authority is the Transport Department of Tasmania. The tender No. is 255. Bids should be sent to the Secretary for Railways, Box 624D, G.P.O. Hobart, Tasmania. The closing date is October 28, 1957. The Board of Trade reference is ESB/23279/57.

From South Africa

620,000 steel sleepers for 61 lb. S.A.R. flat bottom rails to drawing E.1023/5.

250,000 steel sleepers for 81 lb. S.A.R. flat bottom rails to drawing E.3085/3.

The Issuing Authority is the Stores Department, South African Railways. Bids, in sealed envelopes, endorsed "Tender No. A.6820: Steel Sleepers" should be addressed to The Chairman of the Tender Board, South African Railways, P.O. Box 7784, Johannesburg. The closing date is October 11, 1957. The Board of Trade reference is ESB/23102/57.

Further details regarding the above tenders, together with photo-copies of tender documents, can be obtained from the Branch (Lacon House, Theobalds Road, W.C.1).

Staff and Labour Matters

Footplate Staff Pay

The executive committee of the A.S.L.E.F. has decided to lodge a claim with the B.T.C. for an increase of 10 per cent in the existing rates of pay of footplate staff employed on British Railways. The last increase in pay for footplate staff took effect from March 4, 1957, when an increase of 5 per cent (in substitution for 3 per cent already granted from November 26, 1956) was agreed.

As previously reported, a claim for a substantial addition to the pay of railway salaried and conciliation staff already has been submitted by the N.U.R.

TRANS-ZAMBESIA RAILWAY RESULTS.—In 1956, the Trans-Zambesia Railway carried 799,878 tons of freight, compared with 687,125 tons in 1955 and 562,789 tons in 1954. Gross receipts rose to £1,011,813 from £872,994 and working expenses increased to £761,545 (£633,061). After tax of £68,949 (£68,848), provision for accidents of £11,667 (£24,140); and an allocation of £17,923 (£5,369) to reserve for increased cost of replacement of fixed assets, there was a balance of £136,536 (£127,080).

BRITISH STANDARD FOR COOLANT PUMPS FOR I.C. ENGINES.—A new British Standard (B.S. 2896:1957) is one of a series designed to secure a measure of standardisation of dimensions of components of internal combustion engines. Its main purpose is to facilitate the interchangeability of certain centrifugal coolant pumps and their components. It is also intended that wherever possible it should apply in whole or in part to all other forms of "built-on" pumps in the capacity range 1,750-17,500 gal. per hr. at 30-ft. maximum head. The standard specifies a range of four suction and discharge bore sizes. It is envisaged that pumps embodying these features will be suitable for use on future industrial, locomotive, or marine engines in the power range of 150 to 2,000 h.p. A number of recommendations on pump design is also included. Copies of the publication, price 4s. 6d., may be obtained from the British Standards Institution, Sales Branch, 2, Park Street, London, W.1.

Notes and News

Institute of Transport: Anniversary Luncheon.—The thirty-eighth anniversary luncheon of the Institute of Transport will be held on Tuesday, November 12, at the Connaught Rooms, Great Queen Street, London, W.C.2, at 12.30 for 1.10 p.m.

Cross-Channel Air Ferry Rates Reduced.—Substantial reductions in the price of Silver City cross-Channel air ferry services came into force on October 1. For the smaller types of motorcar rates on the Le Touquet and Calais routes are now cheaper than the equivalent rate by sea. The rate cuts have been made in an attempt to increase off-season traffic and help defray heavy overhead costs during the winter.

Higher-Density Central Line Services.—The train service on the in-town section of the Central Line of London Transport is to be increased between the morning and evening peak hours by 25 per cent, starting in November. The present 24 trains an hour service is to be increased to 30, giving a train every 2 min. through the West End and City. The stations which will be served are: Liverpool Street, Bank, St. Paul's, Chancery Lane, Holborn, Tottenham Court Road, Oxford Circus, Bond Street, and Marble Arch. It is hoped that this improvement will make off-peak tube travel facilities along the Oxford Street-Holborn artery more attractive to shoppers and business people. Two other Central Line improvements are to be made at the same time. In peak-hours, nine more trains will be increased from seven to eight cars, giving a total of 48 eight-car trains. To help eastbound travellers going to Leytonstone, Woodford, and Loughton in the evening peak, the evening service is being adjusted so that more Central Line trains will run between 5.30 and 6 p.m. During this period the number of Loughton-bound trains will be increased from eight to 12, giving a 50 per cent increase in accommodation.

Change of Address.—The Union Internationale des Chemins de fers has recently changed its address, and is now located at Office de Recherches et D'essais, Maliebaan 1, Utrecht.

Prototype Coaches on the "Manchunian."—Two new prototype coaches, one first and one second class, have been included on the "Manchunian" express, and passengers are being asked to express their opinion of them by a travelling courier. The vehicles, which were built by the Gloucester Railway Carriage & Wagon Co. Ltd., were described in our issue of July 12, 1957.

Schoolboys Obstruct Railway Line.—Four 17-year-old schoolboys were fined £5 each and ordered to pay £10 costs each at Oxford City Quarter Sessions on September 30. They were stated to have been taking a short cut by the railway when a locomotive passed and "blew steam all over them." Taking exception to the amusement of the driver, the boys placed some 80 wooden blocks and a rail chair on the line near Aston Rowant station. Railway staff were informed by a man who saw the obstruction and no damage was done.

London Transport Bus "Rover" Tickets.—To attract passengers at the weekend, London Transport is introducing 5s. all-day tickets which will give unlimited travel on the Central (red) buses. The tickets, printed like season tickets, will be called "Red Rovers" and will start on October 12. Issued for use on Saturdays or Sundays, they will give the holder the right to travel as much as he likes for the day, anywhere on the 1,500-mile network of the 300 central bus and trolleybus routes stretching roughly 15 miles from Charing Cross. Similar tickets introduced on the much smaller country bus system last year were very successful, and more than 350,000 5s. tickets have been sold. Tickets can be bought in advance from Monday onwards for use on the following Saturday or Sunday.

Gas Leak at Waterloo Station.—A leak in a gas main, which, because of its location, took seven hours to trace, interfered with some of the catering arrangements at Waterloo Station on Tuesday last. It was necessary to cut off gas connections to the station buffets until the cause of the leak, a six-inch crack, could be determined and the damage repaired.

Institute of Transport Presidential Address.—Sir Reginald H. Wilson, Member of the British Transport Commission and Chairman of the Eastern Area Board, will deliver his Presidential Address to the Institute of Transport at the inaugural meeting of the 1957-58 Session, to be held on Monday, October 14, at 5.45 for 6.15 p.m. in the Jarvis Hall, 66, Portland Place, London, W.1.

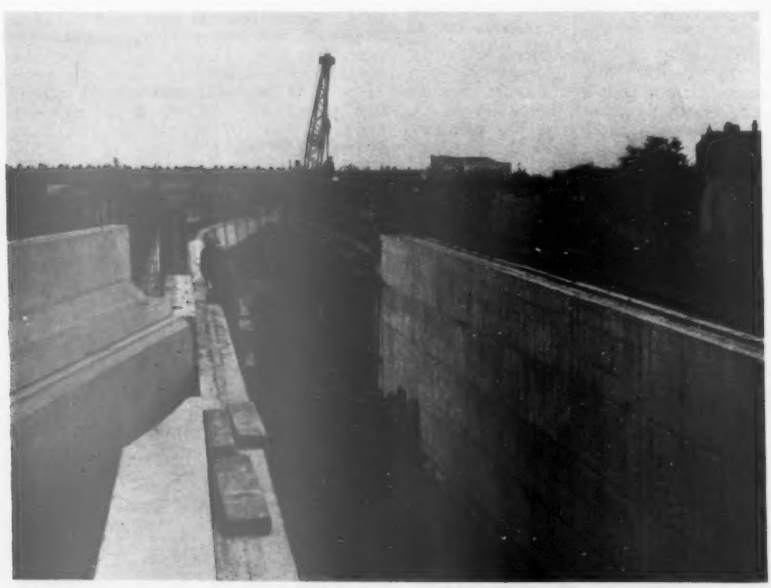
New Departure Time for "The Mid-Day Scot."—The Scottish Region of British Railways has announced that with the end of the holiday season "The Mid-Day Scot," which leaves from Glasgow (Central), on Mondays to Fridays inclusive, at 3 p.m., will revert to the former departure time of 1.30 p.m. every week-day on and from October 7. Arriving at London Euston at 9 p.m. (9.5 p.m. on Saturdays), and will continue to call at Carlisle and Crewe.

Brighton Industries Limited Change of Address.—Brighton Industries Limited, one of the Ayling Industries Group companies which makes Bribond thermosetting and thermoplastic laminated signs, notices, labels, diagrams, charts, graphs, printed circuits and mouldings, has moved its headquarters from Portslade near Brighton to a new factory at Burgess Hill, Sussex, and changed its name to Bribond Limited. The new address is Burgess Hill, Sussex, telephone: Burgess Hill 85611.

Superheater Co. Ltd. Interim Dividend.—The directors of the Superheater Co. Ltd. have declared an interim dividend of 6d. a share on the ordinary shares, to be paid on October 19, 1957, to all shareholders on the register at the close of business on October 4, 1957. The board states that for the eight months of this year output exceeds that for the corresponding period last year. Exports and earnings show an increase. Although the value of new orders booked in this period is less than a year ago, it is in excess of output.

Minister Urges Staggering of Working Hours.—In an address to the annual conference of the Municipal Passenger Transport Association at Southend on September 26, Mr. Harold Watkinson, Minister of Transport & Civil Aviation, declared that there were good reasons, particularly now, for the Government to join with transport operators in trying to make a success of the staggered hours campaigns in London and some provincial cities. Crowded rush-hour travel, he stated, was inevitably a cause of spread of infection and consequently of loss of working time through illness. It was uncomfortable and jading travel which tired people even

Barking Flyover under Construction



Work in progress on Barking flyover, Eastern Region. It will carry tracks across on the line of concrete beams on the left to connect with the pier in the right background in the direction of Barking station

before they started their day's work. If Britain was to go at top speed, as it must, it could not afford such handicaps. "If we are to make the best use of our capital resources in vehicles and of our manpower resources in crews," he continued, "we must do all we can to spread the peak load as widely as possible, and also to encourage more travel at off-peak hours."

Wickham Diesel Set in Service.—The first of the 300-h.p., two-car diesel sets, built by D. Wickham & Co. Ltd., and described in our issue of July 5, has been placed in service in the Eastern Region. The railcar bodywork incorporates tubular steel frame-construction, first developed by the manufacturer in 1936. A feature of the interior is the extensive use of Warerite plastics.

Broom & Wade Exhibits at Olympia.—Details of products which Broom & Wade Limited will be showing at their stand at the Building Exhibition, on November 13-27, at Olympia, London, have been announced. These will include portable, single- and two-stage rotary air compressor plants and pneumatic tools. A recently developed single-stage rotary air compressor will be seen as well as an Aro-Broomwade lightweight pneumatic hoist.

Heavy Death-Roll in Pakistan Collision.—On September 29, a train of tank wagons containing oil collided head-on with an express passenger train bound for Karachi at Gambar station, some 100 miles from Lahore. The latest report available as we went to press puts the death roll at 250, and mentions "charred wreckage," suggesting that the trains caught fire. The Minister of Communications for Pakistan, Mian Jaffer Shah, has visited the scene of the accident, and the pointsman who was on duty at the time has been arrested. More than 100 people are reported to have been injured, in addition to those killed, and two relief camps have been opened in the vicinity. A message of sympathy has been sent by Sir John Benstead, Deputy Chairman, British Transport Commission.

Winter Car Sleeper Service.—The winter "Cars by Rail" service to Scotland, first introduced last year, recommenced on September 30. This facility is available, Saturdays excepted, in each direction between Kings Cross—Edinburgh, Perth, Aberdeen and Inverness. Rail vans, specially constructed for the conveyance of cars are being attached to certain ordinary service Anglo-Scottish overnight expresses. There is one van on the 10.15 p.m. Kings Cross to Aberdeen and two vans on the 11.20 p.m. Kings Cross to Edinburgh, Perth or Inverness. Each van can carry three cars. Passengers taking their cars to Scotland by these trains can travel first or second class by the normal night services.

Institution of Locomotive Engineers Meeting.—The first general meeting of the 1957-58 session of the Institution of Locomotive Engineers was held on September 25, when Mr. E. S. Cox, Mechanical Engineer (Development), British Railways Central Staff, British Transport Commission, delivered his Presidential address entitled "Approach to Modernisation." This was the subject of editorial comment in our issue of September 27. Some 200 members and guests were present. In introducing Mr. Cox as President for the session, the retiring President, Mr. J. F. B. Vidal, said he felt the Institution was "on the verge of another upward surge" and commented on the value of the revised by-laws and handbook. Awards by the Council of the Institution for Papers were announced at the meeting, and Mr. Vidal made the presentations to those members who were present.

Railway Students' Association: Annual Dinner.—The Railway Students' Association are holding their annual dinner and dance at the London Transport (South Kensington) Club, on Wednesday, December 4.

Materials Handling Limited Change of Address.—Materials Handling Equipment (Great Britain) Limited has moved to larger premises. The new address is 40a, Dover Street, Piccadilly, London, W.1. Telephone GROsvenor 2934.

Report on European Free Trade Area.—A joint report on the European Free Trade Area was issued on October 2 by the Association of British Chambers of Commerce, the Federation of British Industries, and the National Union of Manufacturers. It is a statement of the points which the three organisations rely on the Government to secure in order that conditions of trading in a European Free Trade Area may be fair to British industry and commerce, together with appendices on transport in the European Free Trade Area and on the treatment of hard-hit industries. The report may be obtained from the organisations mentioned, price 2s. 6d.

Serious Accident in Nigeria.—It is reported from Nigeria that a Lagos-Kano train left the rails some 20 miles north of Ibadan on September 29, when it ran into a torrent in flood, and plunged over an embankment. The latest figures available as we went to press put the number of dead at 35 and the number of injured at 122. Two further coaches, which were in the stream, had not been reached. It is feared that some passengers may have been carried away by the water. Others may have walked away and reached Ibadan, complicating the assessment of casualties. The Queen has sent the following message of sympathy to the Governor-General of the Federation of Nigeria: "My husband and I have heard with great regret of the railway accident near Ibadan. Please convey our deep sympathy to the families of those who have lost their lives and to the injured." Messages of sympathy have also been sent by the Secretary of State for the Colonies, Mr. Alan Lennox-Boyd, Sir John Rankine, Governor of the Western Region of Nigeria, and Sir John Benstead, Deputy Chairman, British Transport Commission.

George Cohen 600 Group Limited Meeting.—The annual meeting of the George Cohen 600 Group Limited was held in London on September 24. In his circulated statement, Mr. Cyril M. Cohen, Chairman & Managing Director, stated that, taking the year as a whole, demands for the products of the group were greater than ever. Turnover amounted to £32 million, some 25 per cent more than the previous total. After deducting taxation, totalling £1,238,942, and profits applicable to minority shareholders of £5,224, the net profit attributable to members of the George Cohen 600 Group Limited amounted to £1,092,462, compared with £887,288 in the previous year. A final dividend of 8½ per cent was recommended on ordinary stock increased to £3,125,000 by a £625,000 rights issue. The pace of inflation, Mr. Cohen believes, seems to be increasing and the ability of Britain to compete in export markets is now balanced on a knife-edge. It would be injudicious, he concludes, to count on any marked increase in the group earnings in the current year. The report and accounts were adopted.

World Bank Loan to South Africa for S.A.R.—The World Bank is to make a loan of $25 million (£8,900,000) to South Africa under an agreement signed in New York on October 1. This loan will be applied to the expansion of the railway services, as the South African Railways require greatly increased capacity to keep pace with growing industrial and agricultural activity. This is the fourth loan to be made by the Bank to South Africa.

Great Harwood Line to Remain Open Temporarily.—British Railways, London Midland Region, has stated that the recent announcement that the passenger train service to Great Harwood, Simonstone and Padiham, between Blackburn and Rose Grove, will be permanently withdrawn on and from October 7, 1957, is premature. The matter is still under consideration.

Last Steam Locomotive from Doncaster.—The Doncaster works of British Railways will complete its last steam locomotive on October 16. This will be No. 76114, a standard 2-6-0 class 4 mixed-traffic locomotive. It will also be the last to be produced under the direction of Mr. K. J. Cook, Chief Mechanical and Electrical Engineer, Doncaster, who controls all locomotive works throughout the Eastern and North Eastern Regions. The first locomotive was built at Doncaster in 1867. A building programme of 350-h.p. diesel shunting engines is being started and the employees are being gradually trained and changed over to this new work. Doncaster will still be responsible for the maintenance and repair of steam locomotives.

Compensation for Irish Railway Employees.—The Minister for Industry and Commerce, Republic of Ireland, Mr. Lemass, has announced that arising out of the closing of the Sligo-Leitrim and Northern Counties Railway lines on October 1, he has informed the company that he is prepared to ask the Dail to vote such sum as might be necessary to supplement the funds available to the company to enable an ex gratia payment of compensation at the rate of one month's pay for each completed year of service, within a maximum of 24 months' pay, to be made to any of the company's employees domiciled within the State who is not provided with alternative employment by Coras Iompair Eireann. It is understood that the Northern Ireland Government is also to make special concessions to dismissed G.N.R.(I.) employees affected by the closures.

Sunday Restaurant-Car Facilities in Scotland.—The Scottish Region of British Railways announces that restaurant cars are now attached to all regular Sunday trains between Perth and Inverness, namely the 6.30 a.m. and 9.50 a.m. from Perth and the 3.0 p.m. and 5.5 p.b. from Inverness. The restaurant car on the 6.30 a.m. from Perth will provide breakfast for passengers travelling by the new 7.30 p.m. Saturday night train from London, Euston, and that on the 5.5 p.m. from Inverness will provide dinner on the Sunday night Inverness-London service. The 9.50 a.m.

train from Perth connects with the Sunday morning trains from Glasgow and Edinburgh, and the 3 p.m. Sunday service from Inverness includes through carriages for Glasgow and Edinburgh. These trains call at Newtonmore, Kingussie, Aviemore, Grantown-on-Spey, Forres, and Nairn.

B.I.C.C. Change of Telephone Number.—British Insulated Callender's Cables Limited has announced that the telephone number of their depot at Camden Street, Derby, has been changed to Derby 41421/2.

Gloucester Railway Carriage & Wagon Co. Ltd. Results.—The group net profits of the Gloucester Railway Carriage & Wagon Co. Ltd. for the year ended May 31 rose to £199,357 from £156,801 for 1955-56. This was after deducting tax of £246,653 (£165,489) and after crediting tax over provisions of £8,418 (£1,044). An ordinary dividend of 15 per cent is proposed compared with 10 per cent for the previous year. General reserve receives £65,000 (£50,000) and £64,177 (£64,143) is carried forward.

Opening of Extensions to Metro-Vick Training School.—Extensions to the apprentice training school at the Trafford Park Works of Metropolitan-Vickers Electrical Co. Ltd. were officially opened on September 23 by Sir Edward Boyle, Parliamentary Secretary to the Ministry of Education, on behalf of Viscount Hailsham, Lord President of the Council. Sir Edward Boyle, introduced by Lord Chandos, Chairman of the company and of the Associated Electrical Industries group, reviewed achievements in the field of industrial training since the war. He gave first place to the widespread recognition of the need for more systematic methods of recruitment and training at all levels. Combined with this, he said, was a growing realisation of the fact that further education must form an integral part of the training, not only of technologists and technicians, but also of craftsmen and even of semi-skilled workers.

OFFICIAL NOTICES

FOR SALE OR HIRE. Hudswell Clarke 0-6-0 standard gauge STEAM LOCOMOTIVE, in good condition.—Apply Eagre Construction Co. Ltd., Scunthorpe, Lincolnshire. 'Phone 4513 (7 lines).

BOUND VOLUMES.—We can arrange for readers' copies to be bound in full cloth at a charge of 25s. per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press, Limited, 33 Tothill Street, London, S.W.1.

Forthcoming Meetings

Open currently and until further notice.—British Transport Commission: Historical Exhibition "Transport Treasures" in Shareholders' Meeting Room, Euston Station, from 10 a.m. to 6 p.m. on weekdays, and 2 to 6 p.m. on Sundays. Admission 6d.

October 4 (*Fri.*).—The Railway Club, at 320, High Holborn, London, W.C.1, at 7 p.m. Paper on "Some arrangements for the international working of passenger traffic on the Continent," by Mr. N. W. Sprinks.

October 5 (*Sat.*).—Permanent Way Institution, London Section. Visit to British Railways Research Laboratories at Derby.

October 8 (*Tue.*).—South Wales & Monmouthshire Railways & Docks Lecture & Debating Society, at the Angel Hotel, Westgate Street, Cardiff, at 6.30 p.m. Paper on "The Outlook in Modern Railway Operation," illustrated by lantern slides, by Mr. S. G. Hearn, Chief Operating Superintendent, Western Region, Paddington.

October 9 (*Tue.*).—Railway Correspondence & Travel Society, West Riding Branch, at the Railway Institute, York, at 7.30 p.m. Paper on "The 0-4-0 tank locomotives of the L.N.E.R.," by Mr. W. B. Yeadon.

October 10 (*Wed.*).—Railway Correspondence & Travel Society, West Midlands Branch, at the Arden Hotel, New Street, Birmingham, at 7.30 p.m. Paper on "A G.W.R. miscellany," illustrated, by Mr. P. J. Garland.

October 12 (*Sat.*).—Permanent Way Institution, Manchester & Liverpool Section, at the Manchester College of Technology, Sackville Street, Manchester, at 2.30 p.m. Talk on "The work of the B.T.C. mining service," by Mr. M. Fletcher.

October 16 (*Wed.*).—British Railways (Southern Region) Lecture & Debating Society, in the Chapter House, St. Thomas's Street, S.E.1, at 6 p.m. Paper on "Freight rolling stock," by Mr. A. H. J. Turner. In the chair, Mr. H. B. Taylor.

October 17 (*Thu.*).—Railway Correspondence & Travel Society, Lancashire & North West Branch, at All Saints Rectory, Droylsden Road, Newton Heath, Manchester, 10, at 7 p.m. Messrs. D. R. Smith and J. F. Oxley on "The Cambrian Railways."

October 17 (*Thu.*).—British Railways (Western Region) London Lecture & Debating Society, at Headquarters Staff Dining Club, Bishop's Bridge Road, Paddington, W.2, at 5.45 p.m. Paper on "The running of the track testing car on the Western Region," illustrated, by Mr. R. M. Hancock, Chief Experimental & Locomotive Testing Officer, London, and Mr. J. Rees, Chief Civil Engineer's office, Paddington.

October 18 (*Fri.*).—Railway Correspondence & Travel Society, London Branch, at the Railway Clearing House, Eversholt Street, N.W.1, at 7.15 p.m. Paper on "A railway holiday in Russia," illustrated by lantern slides, by Mr. J. H. Price.

October 23 (*Wed.*).—Railway Students' Association, at the London School of Economics & Political Science, Houghton Street, W.C.2, at 6,30 p.m. Presidential Address by Mr. A. H. Grainger, Deputy Chairman, London Transport Executive. Mr. J. W. Watkins, retiring President, in the chair.

Railway Stock Market

Helped by the rise in the £ in relation to the U.S. dollar and leading European currencies, stock markets made some recovery from the heavy falls which followed the raising of the bank rate to 7 per cent. Buyers were cautious and generally there has been a wait-and-see attitude, but an important factor was that heavy selling did not develop. The trend in the £ is bound to have the dominating influence on markets for the time being. It is realised that the full effects of the credit squeeze have yet to be felt by industry and that although the majority of dividends should be maintained, the credit squeeze will make many companies put larger sums to reserve.

The rather better trend in markets has been reflected in foreign rails, among which Antofagasta ordinary stock strengthened from 28 to 28½, and the preference stock from 40½ to 41. Chilean Northern debentures were 38½ and business at 97 has been recorded in Guayaquil & Quito first bonds and at 77 in the assented bonds, while Paraguay Central debentures have marked 11. Costa Rica ordinary stock was 19 and the 6½ per cent second debentures 90.

Mexican Central bearer debentures have receded from 68½ to 67, while in other directions United of Havana second income debentures were 8⅜ with the income stock 2½. Taltal Railway shares at 13s. 7½d. were virtually the same as a week ago, while San Paulo Railway 3s. units were again quoted at 2s. 4½d.

In other directions, Nyasaland Railways shares remained at 10s. and the 3½ per cent debentures at 52. Canadian Pacifics have been steadier, and at $59¼ compared with $60 a week ago. The 4 per cent debentures strengthened from £59½ to £60½ and the 4 per cent preference stock from £52 to £53. White Pass shares improved from $17 to $17¼ and Peru Transport "B" shares were again $1⅛.

There were small mixed movements among shares of locomotive builders and engineers, but buyers were attracted by the good yields. Beyer Peacock 5s. shares, for instance, were 9s. 1½d., compared with 8s. 7½d. a week ago, and still yield nearly 8½ per cent, assuming the dividend is again 16 per cent, which is the general expectation. Charles Roberts 5s. shares have strengthened from 9s. 6d. to 9s. 9d. at which the yield is fully 7½ per cent on last year's 15 per cent dividend, and Westinghouse Brake, which have eased to 30s. 6d., yield over 5½ per cent. In fact, the recent set-back in markets presents numerous buying opportunities for investors willing to look ahead and prepared for prices to fluctuate for the time being.

Gloucester Wagon 10s. shares at 16s. have held part of the good rise which followed the excellent financial results and higher dividend. Wagon Repairs 5s. shares at 12s. 7½d. have been quite well maintained, while North British Locomotive firmed up from 11s. 9d. a week ago to 12s. 3d., but Hurst Nelson dropped from 29s. to 28s., and in other directions, Birmingham Wagon declined further on balance from 18s. 6d. to 17s. 6d. G. D. Peters, at 26s. 3d., remained at the lower level recorded a week ago, but remained firmly held and it seemed doubtful if the quotation has been adequately tested by dealings.

There has been a rally from 53s. a week ago to 55s. in English Electric, while Associated Electrical were slightly better on balance at 54s. and General Electric gained 9d. at 44s. 9d.

Among other shares, British Timken receded to 56s., and despite the proposed merger of their aluminium interests in a joint company controlled by Tube Investments and the Reynolds Group of the U.S., Tube Investments shares have receded to 58s. 9d. British Aluminium at 47s. 10½d. were also lower than a week ago, but British Oxygen shares have come back on balance from 33s. to 30s. 6d., and shares of the Dowty Group from 31s. 6d. to 30s. Vickers have turned firmer at 33s. Pressed Steel 5s. shares were 13s. Guest Keen at 48s. 3d. recorded some recovery after last week's big set-back in markets.